

# SEQUENCE LISTING

<110> Powell, Douglas M.

<120> METHODS AND COMPOSITIONS FOR TREATING

AIDS AND HIV-RELATED DISORDERS USING 9145, 1725, 311, 837,  
58305, 156, 14175, 50352, 32678, 5560, 7240, 8865, 12396,  
12397, 13644, 19938, 2077, 1735, 1786, 10220, 17822, 33945,  
43748, 47161, 81982 OR 46777

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Thr Leu Gln Lys Val Val Ser His Cys Leu Glu Leu Gly Ala Ala Ser	
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Ala His Tyr Ile Ala Gly Thr Met Glu Asp Met Thr Phe Ala Glu Gln	
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His His Val Arg Lys Ser Met Glu Val Asn Phe Leu Ser Tyr Val Val	
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Val Leu Gly Leu Ile Asp Thr Glu Thr Ala Met Lys Ala Val Ser Gly	
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Ile Val His Met Gln Ala Ala Pro Lys Glu Glu Cys Ala Leu Glu Ile	
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Ile Lys Gly Gly Ala Leu Arg Gln Glu Glu Val Tyr Tyr Asp Ser Ser	
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Leu Trp Thr Thr Leu Leu Ile Arg Asn Pro Cys Arg Lys Ile Leu Glu	
265 270 275	

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Glu Met Ala Tyr His Leu Ala Lys Met Gly Ala His Val Val Val Thr  
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85 90 95  
Thr Phe Ala Glu Gln Phe Val Ala Gln Ala Gly Lys Leu Met Gly Gly  
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Phe His Asp Asp Ile His His Val Arg Lys Ser Met Glu Val Asn Phe  
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Tyr Pro Met Val Ala Ala Tyr Ser Ala Ser Lys Phe Ala Leu Asp Gly  
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Phe Phe Ser Ser Ile Arg Lys Glu Tyr Ser Val Ser Arg Val Asn Val  
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Ser Ile Thr Leu Cys Val Leu Gly Leu Ile Asp Thr Glu Thr Ala Met  
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Lys Ala Val Ser Gly Ile Val His Met Gln Ala Ala Pro Lys Glu Glu  
225 230 235 240  
Cys Ala Leu Glu Ile Ile Lys Gly Gly Ala Leu Arg Gln Glu Glu Val  
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Tyr Tyr Asp Ser Ser Leu Trp Thr Thr Leu Leu Ile Arg Asn Pro Cys  
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Gly Leu Pro Ser Leu Leu Phe Leu Leu Leu Cys Tyr Gly His Pro Leu
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ctg gtc cct agc cag gag gca tcc caa cag gtg aca gtc acc cat ggg      148
Leu Val Pro Ser Gln Glu Ala Ser Gln Gln Val Thr Val Thr His Gly
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aca agc agc cag gca aca acc agc agc cag aca acc acc cac cag gcg      196
Thr Ser Ser Gln Ala Thr Thr Ser Ser Gln Thr Thr Thr His Gln Ala
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acg gcc cac cag aca tca gcc cag agc cca aac ctg gtg act gat gag      244
Thr Ala His Gln Thr Ser Ala Gln Ser Pro Asn Leu Val Thr Asp Glu
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gct gag gcc agc aag ttt gtg gag gaa tat gac cgg aca tcc cag gtg      292
Ala Glu Ala Ser Lys Phe Val Glu Glu Tyr Asp Arg Thr Ser Gln Val
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Val Trp Asn Glu Tyr Ala Glu Ala Asn Trp Asn Tyr Asn Thr Asn Ile
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acc aca gag acc agc aag att ctg ctg cag aag aac atg caa ata gcc      388
Thr Thr Glu Thr Ser Lys Ile Leu Leu Gln Lys Asn Met Gln Ile Ala
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aac cac acc ctg aag tac ggc acc cag gcc agg aag ttt gat gtg aac      436
Asn His Thr Leu Lys Tyr Gly Thr Gln Ala Arg Lys Phe Asp Val Asn
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cag ttg cag aac acc act atc aag cgg atc ata aag aag gtt cag gac      484
Gln Leu Gln Asn Thr Thr Ile Lys Arg Ile Ile Lys Lys Val Gln Asp
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Ile Leu Leu Asp Met Glu Thr Thr Tyr Ser Val Ala Thr Val Cys His
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Pro Asn Gly Ser Cys Leu Gln Leu Glu Pro Asp Leu Thr Asn Val Met
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Tyr	Lys	Asp	Leu	Pro	Val	Ala	Leu	Arg	Glu	Gly	Ala	Asn	Pro	Gly	Phe					
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His	Glu	Ala	Ile	Gly	Asp	Val	Leu	Ala	Leu	Ser	Val	Ser	Thr	Pro	Lys					
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Arg Tyr Phe Val Ser Phe Ile Ile Gln Phe Gln Phe His Glu Ala Leu	
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His	Gly	Glu	Lys	Leu	Gly	Trp	Pro	Gln	Tyr	Asn	Trp	Thr	Pro	Asn	Ser
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Ala	Arg	Ser	Glu	Gly	Pro	Leu	Pro	Asp	Ser	Gly	Arg	Val	Ser	Phe	Leu
			660					665						670	
Gly	Leu	Asp	Leu	Asp	Ala	Gln	Gln	Ala	Arg	Val	Gly	Gln	Trp	Leu	Leu
		675					680					685			
Leu	Phe	Leu	Gly	Ile	Ala	Leu	Leu	Val	Ala	Thr	Leu	Gly	Leu	Ser	Gln
	690					695					700				
Arg	Leu	Phe	Ser	Ile	Arg	His	Arg	Ser	Leu	His	Arg	His	Ser	His	Gly
705					710					715					720
Pro	Gln	Phe	Gly	Ser	Glu	Val	Glu	Leu	Arg	His	Ser				
				725					730						

<210> 5  
 <211> 2051  
 <212> DNA  
 <213> Homo sapiens



<220>  
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 <222> (61)...(1224)

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atg aat cgg cac cat ctg cag gat cac ttt ctg gaa ata gac aag aag 108
Met Asn Arg His His Leu Gln Asp His Phe Leu Glu Ile Asp Lys Lys
1 5 10 15

aac tgc tgt gtg ttc cga gat gac ttc att gcc aag gtg ttg ccg ccg 156
Asn Cys Cys Val Phe Arg Asp Asp Phe Ile Ala Lys Val Leu Pro Pro
20 25 30

gtg ttg ggg ctg gag ttt atc ttt ggg ctt ctg ggc aat ggc ctt gcc 204
Val Leu Gly Leu Glu Phe Ile Phe Gly Leu Leu Gly Asn Gly Leu Ala
35 40 45

ctg tgg att ttc tgt ttc cac ctc aag tcc tgg aaa tcc agc cgg att 252
Leu Trp Ile Phe Cys Phe His Leu Lys Ser Trp Lys Ser Ser Arg Ile
50 55 60

ttc ctg ttc aac ctg gca gta gct gac ttt cta ctg atc atc tgc ctg 300
Phe Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu Ile Ile Cys Leu
65 70 75 80

ccg ttc gtg atg gac tac tat gtg cgg cgt tca gac tgg aac ttt ggg 348
Pro Phe Val Met Asp Tyr Tyr Val Arg Ser Asp Trp Asn Phe Gly
85 90 95

gac atc cct tgc cgg ctg gtg ctc ttc atg ttt gcc atg aac cgc cag 396
Asp Ile Pro Cys Arg Leu Val Leu Phe Met Phe Ala Met Asn Arg Gln
100 105 110

ggc agc atc atc ttc ctc acg gtg gtg gcg gta gac agg tat ttc cgg 444
Gly Ser Ile Ile Phe Leu Thr Val Val Ala Val Asp Arg Tyr Phe Arg
115 120 125

gtg gtc cat ccc cac cac gcc ctg aac aag atc tcc aat tgg aca gca 492
Val Val His Pro His His Ala Leu Asn Lys Ile Ser Asn Trp Thr Ala
130 135 140

gcc atc atc tct tgc ctt ctg tgg ggc atc act gtt ggc cta aca gtc 540
Ala Ile Ile Ser Cys Leu Leu Trp Gly Ile Thr Val Gly Leu Thr Val
145 150 155 160

cac ctc ctg aag aag aag ttg ctg atc cag aat ggc cct gca aat gtg 588
His Leu Leu Lys Lys Lys Leu Leu Ile Gln Asn Gly Pro Ala Asn Val
165 170 175

tgc atc agc ttc agc atc tgc cat acc ttc cgg tgg cac gaa gct atg 636
Cys Ile Ser Phe Ser Ile Cys His Thr Phe Arg Trp His Glu Ala Met
180 185 190

ttc ctc ctg gag ttc ctc ctg ccc ctg ggc atc atc ctg ttc tgc tca 684
Phe Leu Leu Glu Phe Leu Leu Pro Leu Gly Ile Ile Leu Phe Cys Ser
195 200 205

gcc aga att atc tgg agc ctg cgg cag aga caa atg gac cgg cat gcc 732
Ala Arg Ile Ile Trp Ser Leu Arg Gln Arg Gln Met Asp Arg His Ala
210 215 220

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aag atc aag aga gcc atc acc ttc atc atg gtg gtg gcc atc gtc ttt	780
Lys Ile Lys Arg Ala Ile Thr Phe Ile Met Val Val Ala Ile Val Phe	
225 230 235 240	
gtc atc tgc ttc ctt ccc agc gtg gtt gtg cgg atc cgc atc ttc tgg	828
Val Ile Cys Phe Leu Pro Ser Val Val Val Arg Ile Arg Ile Phe Trp	
245 250 255	
ctc ctg cac act tcg ggc acg cag aat tgt gaa gtg tac cgc tcg gtg	876
Leu Leu His Thr Ser Gly Thr Gln Asn Cys Glu Val Tyr Arg Ser Val	
260 265 270	
gac ctg gcg ttc ttt atc act ctc agc ttc acc tac atg aac agc atg	924
Asp Leu Ala Phe Phe Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met	
275 280 285	
ctg gac ccc gtg gtg tac tac ttc tcc agc cca tcc ttt ccc aac ttc	972
Leu Asp Pro Val Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Asn Phe	
290 295 300	
ttc tcc act ttg atc aac cgc tgc ctc cag agg aag atg aca ggt gag	1020
Phe Ser Thr Leu Ile Asn Arg Cys Leu Gln Arg Lys Met Thr Gly Glu	
305 310 315 320	
cca gat aat aac cgc agc acg agc gtc gag ctc aca ggg gac ccc aac	1068
Pro Asp Asn Asn Arg Ser Thr Ser Val Glu Leu Thr Gly Asp Pro Asn	
325 330 335	
aaa acc aga ggc gct cca gag gcg tta atg gcc aac tcc ggt gag cca	1116
Lys Thr Arg Gly Ala Pro Glu Ala Leu Met Ala Asn Ser Gly Glu Pro	
340 345 350	
tgg agc ccc tct tat ctg ggc cca acc tca aat aac cat tcc aag aag	1164
Trp Ser Pro Ser Tyr Leu Gly Pro Thr Ser Asn Asn His Ser Lys Lys	
355 360 365	
gga cat tgt cac caa gaa cca gca tct ctg gag aaa cag ttg ggc tgt	1212
Gly His Cys His Gln Glu Pro Ala Ser Leu Glu Lys Gln Leu Gly Cys	
370 375 380	
tgc atc gag taa tgtcactgga ctgcgcctaa ggtttctctgg aacttccaga	1264
Cys Ile Glu *	
385	
ttcagagaat ctgatttagg gaaactgtgg cagatgagtg ggagactggt tgcaaggtgt	1324
gaccacagga atcctggagg aacagagagt aaagcttcta ggcactctgaa acttgcttca	1384
tctctgacgc tcgcaggact gaagatgggc aaattgtagg cgtttctgct gagcagagtt	1444
ggagccagag atctacttgt gacttggttg ccttcttccc acatctgcct cagactgggg	1504
ggggctcagc tcctcgggtg atatctagcc tgcttgtagg ctctagcagg gataaggaga	1564
gctgagattg gaggaattg tgttgctcct ggaggaagcc caggcatcat taaacaagcc	1624
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ctcaggaag agactcacat gctttggtta gtatctgtgt ttccgggtggg tgtaataggg	1744
gattagcccc agaagggact gagctaaaca gtgttattat gggaaaggaa atggcattgc	1804
tgctttcaac cagcgactaa tgcaatccat tctctcttg tttatagtaa tctaagggtt	1864
gagcagttaa aacggcttca ggatagaaag ctgtttccca cctgtttcgt tttaccatta	1924
aaagggaaac gtgcctctgc cccacgggta gaggggggtgc acgttcctcc tggttccttc	1984
gcttggtgtt ctgtacttac caaaaatcta ccacttcaat aaattttgat aggagacaaa	2044
aaaaaaa	2051

<210> 6  
 <211> 387  
 <212> PRT  
 <213> Homo sapiens

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 Val Leu Gly Leu Glu Phe Ile Phe Gly Leu Leu Gly Asn Gly Leu Ala  
 35 40 45  
 Leu Trp Ile Phe Cys Phe His Leu Lys Ser Trp Lys Ser Ser Arg Ile  
 50 55 60  
 Phe Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Ile Ile Cys Leu  
 65 70 75 80  
 Pro Phe Val Met Asp Tyr Tyr Val Arg Arg Ser Asp Trp Asn Phe Gly  
 85 90 95  
 Asp Ile Pro Cys Arg Leu Val Leu Phe Met Phe Ala Met Asn Arg Gln  
 100 105 110  
 Gly Ser Ile Ile Phe Leu Thr Val Val Ala Val Asp Arg Tyr Phe Arg  
 115 120 125  
 Val Val His Pro His His Ala Leu Asn Lys Ile Ser Asn Trp Thr Ala  
 130 135 140  
 Ala Ile Ile Ser Cys Leu Leu Trp Gly Ile Thr Val Gly Leu Thr Val  
 145 150 155 160  
 His Leu Leu Lys Lys Lys Leu Leu Ile Gln Asn Gly Pro Ala Asn Val  
 165 170 175  
 Cys Ile Ser Phe Ser Ile Cys His Thr Phe Arg Trp His Glu Ala Met  
 180 185 190  
 Phe Leu Leu Glu Phe Leu Leu Pro Leu Gly Ile Ile Leu Phe Cys Ser  
 195 200 205  
 Ala Arg Ile Ile Trp Ser Leu Arg Gln Arg Gln Met Asp Arg His Ala  
 210 215 220  
 Lys Ile Lys Arg Ala Ile Thr Phe Ile Met Val Val Ala Ile Val Phe  
 225 230 235 240  
 Val Ile Cys Phe Leu Pro Ser Val Val Val Arg Ile Arg Ile Phe Trp  
 245 250 255  
 Leu Leu His Thr Ser Gly Thr Gln Asn Cys Glu Val Tyr Arg Ser Val  
 260 265 270  
 Asp Leu Ala Phe Phe Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
 275 280 285  
 Leu Asp Pro Val Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Asn Phe  
 290 295 300  
 Phe Ser Thr Leu Ile Asn Arg Cys Leu Gln Arg Lys Met Thr Gly Glu  
 305 310 315 320  
 Pro Asp Asn Asn Arg Ser Thr Ser Val Glu Leu Thr Gly Asp Pro Asn  
 325 330 335  
 Lys Thr Arg Gly Ala Pro Glu Ala Leu Met Ala Asn Ser Gly Glu Pro  
 340 345 350  
 Trp Ser Pro Ser Tyr Leu Gly Pro Thr Ser Asn Asn His Ser Lys Lys  
 355 360 365  
 Gly His Cys His Gln Glu Pro Ala Ser Leu Glu Lys Gln Leu Gly Cys  
 370 375 380  
 Cys Ile Glu  
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<210> 7  
 <211> 2087

<212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (104)...(1612)

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gagacgtgga gcgcgccggc tcgctgcagc tccgggactc aac atg cgc tgc tgc 115
                                     Met Arg Cys Ser
                                     1

ccg gga ggc gtc tgg ctg ggc ctg gcc gcg tgc ctc ctg cac gtg tcc 163
Pro Gly Gly Val Trp Leu Gly Leu Ala Ala Ser Leu Leu His Val Ser
  5                      10                      15                      20

ctg caa ggc gag ttc cag agg aag ctt tac aag gag ctg gtc aag aac 211
Leu Gln Gly Glu Phe Gln Arg Lys Leu Tyr Lys Glu Leu Val Lys Asn
                25                      30                      35

tac aat ccc ttg gag agg ccc gtg gcc aat gac tgc caa cca ctc acc 259
Tyr Asn Pro Leu Glu Arg Pro Val Ala Asn Asp Ser Gln Pro Leu Thr
                40                      45                      50

gtc tac ttc tcc ctg agc ctc ctg cag atc atg gac gtg gat gag aag 307
Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp Val Asp Glu Lys
                55                      60                      65

aac caa gtt tta acc acc aac att tgg ctg caa atg tct tgg aca gat 355
Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met Ser Trp Thr Asp
                70                      75                      80

cac tat tta cag tgg aat gtg tca gaa tat cca ggg gtg aag act gtt 403
His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly Val Lys Thr Val
                85                      90                      95                      100

cgt ttc cca gat ggc cag att tgg aaa cca gac att ctt ctc tat aac 451
Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile Leu Leu Tyr Asn
                105                      110                      115

agt gct gat gag cgc ttt gac gcc aca ttc cac act aac gtg ttg gtg 499
Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr Asn Val Leu Val
                120                      125                      130

aat tct tct ggg cat tgc cag tac ctg cct cca ggc ata ttc aag agt 547
Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly Ile Phe Lys Ser
                135                      140                      145

tcc tgc tac atc gat gta cgc tgg ttt ccc ttt gat gtg cag cac tgc 595
Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp Val Gln His Cys
                150                      155                      160

aaa ctg aag ttt ggg tcc tgg tct tac gga ggc tgg tcc ttg gat ctg 643
Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp Ser Leu Asp Leu
                165                      170                      175                      180

cag atg cag gag gca gat atc agt ggc tat atc ccc aat gga gaa tgg 691
Gln Met Gln Glu Ala Asp Ile Ser Gly Tyr Ile Pro Asn Gly Glu Trp
                185                      190                      195

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gac cta gtg gga atc ccc ggc aag agg agt gaa agg ttc tat gag tgc	739
Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg Phe Tyr Glu Cys	
200 205 210	
tgc aaa gag ccc tac ccc gat gtc acc ttc aca gtg acc atg cgc cgc	787
Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val Thr Met Arg Arg	
215 220 225	
agg aca ctc tac tat ggc ctc aac ctg ctg atc ccc tgt gtg ctc atc	835
Arg Thr Leu Tyr Tyr Gly Leu Asn Leu Leu Ile Pro Cys Val Leu Ile	
230 235 240	
tcc gcc ctc gcc ctg ctg gtg ttc ctg ctt cct gca gat tcc ggg gag	883
Ser Ala Leu Ala Leu Leu Val Phe Leu Leu Pro Ala Asp Ser Gly Glu	
245 250 255 260	
aag att tcc ctg ggg ata aca gtc tta ctc tct ctt acc gtc ttc atg	931
Lys Ile Ser Leu Gly Ile Thr Val Leu Leu Ser Leu Thr Val Phe Met	
265 270 275	
ctg ctc gtg gct gag atc atg ccc gca aca tcc gat tgc gta cca ttg	979
Leu Leu Val Ala Glu Ile Met Pro Ala Thr Ser Asp Ser Val Pro Leu	
280 285 290	
ata gcc cag tac ttc gcc agc acc atg atc atc gtg ggc ctc tgc gtg	1027
Ile Ala Gln Tyr Phe Ala Ser Thr Met Ile Ile Val Gly Leu Ser Val	
295 300 305	
gtg gtg aca gtg atc gtg ctg cag tac cac cac cac gac ccc gac ggg	1075
Val Val Thr Val Ile Val Leu Gln Tyr His His His Asp Pro Asp Gly	
310 315 320	
ggc aag atg ccc aag tgg acc aga gtc atc ctt ctg aac tgg tgc gcg	1123
Gly Lys Met Pro Lys Trp Thr Arg Val Ile Leu Leu Asn Trp Cys Ala	
325 330 335 340	
tgg ttc ctg cga atg aag agg ccc ggg gag gac aag gtg cgc ccg gcc	1171
Trp Phe Leu Arg Met Lys Arg Pro Gly Glu Asp Lys Val Arg Pro Ala	
345 350 355	
tgc cag cac aag cag cgg cgc tgc agc ctg gcc agt gtg gag atg agc	1219
Cys Gln His Lys Gln Arg Arg Cys Ser Leu Ala Ser Val Glu Met Ser	
360 365 370	
gcc gtg ggc ccg ccg ccc gcc agc aac ggg aac ctg ctg tac atc ggc	1267
Ala Val Gly Pro Pro Pro Ala Ser Asn Gly Asn Leu Leu Tyr Ile Gly	
375 380 385	
ttc cgc ggc ctg gac ggc gtg cac tgt gtc ccg acc ccc gac tct ggg	1315
Phe Arg Gly Leu Asp Gly Val His Cys Val Pro Thr Pro Asp Ser Gly	
390 395 400	
gta gtg tgt ggc cgc atg gcc tgc tcc ccc acg cac gat gag cac ctc	1363
Val Val Cys Gly Arg Met Ala Cys Ser Pro Thr His Asp Glu His Leu	
405 410 415 420	
ctg cac ggc ggg caa ccc ccc gag ggg gac ccg gac ttg gcc aag atc	1411
Leu His Gly Gly Gln Pro Pro Glu Gly Asp Pro Asp Leu Ala Lys Ile	
425 430 435	
ctg gag gag gtc cgc tac att gcc aac cgc ttc cgc tgc cag gac gaa	1459

Leu Glu Glu Val Arg Tyr Ile Ala Asn Arg Phe Arg Cys Gln Asp Glu  
 440 445 450  
 agc gag gcg gtc tgc agc gag tgg aag ttc gcc gcc tgt gtg gtg gac 1507  
 Ser Glu Ala Val Cys Ser Glu Trp Lys Phe Ala Ala Cys Val Val Asp  
 455 460 465  
 cgc ctg tgc ctc atg gcc ttc tcg gtc ttc acc atc atc tgc acc atc 1555  
 Arg Leu Cys Leu Met Ala Phe Ser Val Phe Thr Ile Ile Cys Thr Ile  
 470 475 480  
 ggc atc ctg atg tcg gct ccc aac ttc gtg gag gcc gtg tcc aaa gac 1603  
 Gly Ile Leu Met Ser Ala Pro Asn Phe Val Glu Ala Val Ser Lys Asp  
 485 490 495 500  
 ttt gcg taa ccacactggt tctgtacatg tggaaaactc acagatgggc 1652  
 Phe Ala \*

aaggcctttg gcttggcgag atttgggggt gctaataccag gacagcatta cacgccacaa 1712  
 ctccagtgtt ccttctctggc tgcagtcgt gttgcttacg gtttctttgt tacttttaggt 1772  
 agtagaatct cagcactttg ttcatattc tcagatgggc tgatagatac tccttggcac 1832  
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 ctgcatgaag gtctacctga aaattcaaca tttgcttttt gcttgtgtac aaaccagat 2012  
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 acaaaaaaaaa aaaaa 2087

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 <212> PRT  
 <213> Homo sapiens

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 Leu Val Lys Asn Tyr Asn Pro Leu Glu Arg Pro Val Ala Asn Asp Ser  
 35 40 45  
 Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp  
 50 55 60  
 Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met  
 65 70 75 80  
 Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly  
 85 90 95  
 Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile  
 100 105 110  
 Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr  
 115 120 125  
 Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly  
 130 135 140  
 Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp  
 145 150 155 160  
 Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp  
 165 170 175  
 Ser Leu Asp Leu Gln Met Gln Glu Ala Asp Ile Ser Gly Tyr Ile Pro  
 180 185 190  
 Asn Gly Glu Trp Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg  
 195 200 205  
 Phe Tyr Glu Cys Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val

210	215	220
Thr Met Arg Arg Arg	Thr Leu Tyr Tyr Gly	Leu Asn Leu Leu Ile Pro
225	230	235
Cys Val Leu Ile Ser	Ala Leu Ala Leu Leu	Val Phe Leu Leu Pro Ala
245	250	255
Asp Ser Gly Glu Lys	Ile Ser Leu Gly Ile	Thr Val Leu Leu Ser Leu
260	265	270
Thr Val Phe Met Leu	Leu Val Ala Glu Ile	Met Pro Ala Thr Ser Asp
275	280	285
Ser Val Pro Leu Ile	Ala Gln Tyr Phe Ala	Ser Thr Met Ile Ile Val
290	295	300
Gly Leu Ser Val Val	Val Thr Val Ile Val	Leu Gln Tyr His His His
305	310	315
Asp Pro Asp Gly Gly	Lys Met Pro Lys Trp	Thr Arg Val Ile Leu Leu
325	330	335
Asn Trp Cys Ala Trp	Phe Leu Arg Met Lys	Arg Pro Gly Glu Asp Lys
340	345	350
Val Arg Pro Ala Cys	Gln His Lys Gln Arg	Arg Cys Ser Leu Ala Ser
355	360	365
Val Glu Met Ser Ala	Val Gly Pro Pro Pro	Ala Ser Asn Gly Asn Leu
370	375	380
Leu Tyr Ile Gly Phe	Arg Gly Leu Asp Gly	Val His Cys Val Pro Thr
385	390	395
Pro Asp Ser Gly Val	Val Cys Gly Arg Met	Ala Cys Ser Pro Thr His
405	410	415
Asp Glu His Leu Leu	His Gly Gly Gln Pro	Pro Glu Gly Asp Pro Asp
420	425	430
Leu Ala Lys Ile Leu	Glu Glu Val Arg Tyr	Ile Ala Asn Arg Phe Arg
435	440	445
Cys Gln Asp Glu Ser	Glu Ala Val Cys Ser	Glu Trp Lys Phe Ala Ala
450	455	460
Cys Val Val Asp Arg	Leu Cys Leu Met Ala	Phe Ser Val Phe Thr Ile
465	470	475
Ile Cys Thr Ile Gly	Ile Leu Met Ser Ala	Pro Asn Phe Val Glu Ala
485	490	495
Val Ser Lys Asp Phe	Ala	
500		

<210> 9  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (248)...(1825)

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 agccccgggg cgccgcgcgg agagcaagcg gagatagcga ctttgcgccc ccagccctc 180  
 gccttcttgc atcgcgttcc ccgcattctc gggtccttct gtcctttccg ctgtccccac 240  
 cgccgcc atg gcc acc ttg ctc cgc agc aag ctg tcc aac gtg gcc acg 289  
 Met Ala Thr Leu Leu Arg Ser Lys Leu Ser Asn Val Ala Thr  
 1 5 10  
 tcc gtg tcc aac aag tcc cag gcc aag atg agc ggc atg ttc gcc agg 337  
 Ser Val Ser Asn Lys Ser Gln Ala Lys Met Ser Gly Met Phe Ala Arg  
 15 20 25 30

atg ggt ttt cag gcg gcc acg gat gag gag gcg gtg ggc ttc gcg cat	385
Met Gly Phe Gln Ala Ala Thr Asp Glu Glu Ala Val Gly Phe Ala His	
35 40 45	
tgc gac gac ctc gac ttt gag cac cgc cag ggc ctg cag atg gac atc	433
Cys Asp Asp Leu Asp Phe Glu His Arg Gln Gly Leu Gln Met Asp Ile	
50 55 60	
ctg aaa gcc gag gga gag ccc tgc ggg gac gag ggc gct gaa gcg ccc	481
Leu Lys Ala Glu Gly Glu Pro Cys Gly Asp Glu Gly Ala Glu Ala Pro	
65 70 75	
gtc gag gga gac atc cat tat cag cga ggc agc gga gct cct ctg ccg	529
Val Glu Gly Asp Ile His Tyr Gln Arg Gly Ser Gly Ala Pro Leu Pro	
80 85 90	
ccc tcc ggc tcc aag gac cag gtg gga ggt ggt ggc gaa ttc ggg ggc	577
Pro Ser Gly Ser Lys Asp Gln Val Gly Gly Gly Gly Glu Phe Gly Gly	
95 100 105 110	
cac gac aag ccc aaa atc acg gcg tgg gag gca ggc tgg aac gtg acc	625
His Asp Lys Pro Lys Ile Thr Ala Trp Glu Ala Gly Trp Asn Val Thr	
115 120 125	
aac gcc atc cag ggc atg ttc gtg ctg ggc cta ccc tac gcc atc ctg	673
Asn Ala Ile Gln Gly Met Phe Val Leu Gly Leu Pro Tyr Ala Ile Leu	
130 135 140	
cac ggc ggc tac ctg ggg ttg ttt ctc atc atc ttc gcc gcc gtt gtg	721
His Gly Gly Tyr Leu Gly Leu Phe Leu Ile Ile Phe Ala Ala Val Val	
145 150 155	
tgc tgc tac acc ggc aag atc ctc atc gcg tgc ctg tac gag gag aat	769
Cys Cys Tyr Thr Gly Lys Ile Leu Ile Ala Cys Leu Tyr Glu Glu Asn	
160 165 170	
gaa gac ggc gag gtg gtg cgc gtg cgg gac tcg tac gtg gcc ata gcc	817
Glu Asp Gly Glu Val Val Arg Val Arg Asp Ser Tyr Val Ala Ile Ala	
175 180 185 190	
aac gcc tgc tgc gcc ccg cgc ttc cca acg ctg ggc ggc cga gtg gtg	865
Asn Ala Cys Cys Ala Pro Arg Phe Pro Thr Leu Gly Gly Arg Val Val	
195 200 205	
aac gta gcg cag atc atc gag ctg gtg atg acg tgc atc ctg tac gtg	913
Asn Val Ala Gln Ile Ile Glu Leu Val Met Thr Cys Ile Leu Tyr Val	
210 215 220	
gtg gtg agt ggc aac ctc atg tac aac agc ttc ccg ggg ctg ccc gtg	961
Val Val Ser Gly Asn Leu Met Tyr Asn Ser Phe Pro Gly Leu Pro Val	
225 230 235	
tcg cag aag tcc tgg tcc att atc gcc acg gcc gtg ctg ctg cct tgc	1009
Ser Gln Lys Ser Trp Ser Ile Ile Ala Thr Ala Val Leu Leu Pro Cys	
240 245 250	
gcc ttc ctt aag aac ctc aag gcc gtg tcc aag ttc agt ctg ctg tgc	1057
Ala Phe Leu Lys Asn Leu Lys Ala Val Ser Lys Phe Ser Leu Leu Cys	
255 260 265 270	
act ctg gcc cac ttc gtc atc aat atc ctg gtc ata gcc tac tgt cta	1105



Thr	Leu	Ala	His	Phe	Val	Ile	Asn	Ile	Leu	Val	Ile	Ala	Tyr	Cys	Leu	
				275					280					285		
tcg	cgg	gcg	cgc	gac	tgg	gcc	tgg	gag	aag	gtc	aag	ttc	tac	atc	gac	1153
Ser	Arg	Ala	Arg	Asp	Trp	Ala	Trp	Glu	Lys	Val	Lys	Phe	Tyr	Ile	Asp	
			290					295					300			
gtc	aag	aag	ttc	ccc	atc	tcc	att	ggc	atc	atc	gtg	ttc	agc	tac	acg	1201
Val	Lys	Lys	Phe	Pro	Ile	Ser	Ile	Gly	Ile	Ile	Val	Phe	Ser	Tyr	Thr	
		305					310					315				
tct	cag	atc	ttc	ctg	cct	tcg	ctg	gag	ggc	aat	atg	cag	cag	ccc	agc	1249
Ser	Gln	Ile	Phe	Leu	Pro	Ser	Leu	Glu	Gly	Asn	Met	Gln	Gln	Pro	Ser	
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gag	ttc	cac	tgc	atg	atg	aac	tgg	acg	cac	atc	gca	gcc	tgc	gtg	ctc	1297
Glu	Phe	His	Cys	Met	Met	Asn	Trp	Thr	His	Ile	Ala	Ala	Cys	Val	Leu	
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aag	ggc	ctc	ttc	gcg	ctc	gtc	gcc	tac	ctc	acc	tgg	gcc	gac	gag	acc	1345
Lys	Gly	Leu	Phe	Ala	Leu	Val	Ala	Tyr	Leu	Thr	Trp	Ala	Asp	Glu	Thr	
				355					360					365		
aag	gag	gtc	atc	acg	gat	aac	ctg	ccc	ggc	tcc	atc	cgc	gcc	gtg	gtc	1393
Lys	Glu	Val	Ile	Thr	Asp	Asn	Leu	Pro	Gly	Ser	Ile	Arg	Ala	Val	Val	
			370					375					380			
aac	atc	ttt	ctg	gtg	gcc	aag	gcg	ctg	ttg	tcc	tat	cct	ctg	cca	ttc	1441
Asn	Ile	Phe	Leu	Val	Ala	Lys	Ala	Leu	Leu	Ser	Tyr	Pro	Leu	Pro	Phe	
		385					390					395				
ttt	gcc	gct	gtc	gag	gtg	ctg	gag	aag	tcg	ctc	ttc	cag	gaa	ggc	agc	1489
Phe	Ala	Ala	Val	Glu	Val	Leu	Glu	Lys	Ser	Leu	Phe	Gln	Glu	Gly	Ser	
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Arg	Ala	Phe	Phe	Pro	Ala	Cys	Tyr	Ser	Gly	Asp	Gly	Arg	Leu	Lys	Ser	
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Trp	Gly	Leu	Thr	Leu	Arg	Cys	Ala	Leu	Val	Val	Phe	Thr	Leu	Leu	Met	
				435					440					445		
gcc	att	tat	gtg	ccg	cac	ttc	gcg	ctg	ctc	atg	ggc	ctc	acc	ggc	agc	1633
Ala	Ile	Tyr	Val	Pro	His	Phe	Ala	Leu	Leu	Met	Gly	Leu	Thr	Gly	Ser	
			450					455					460			
ctc	acg	ggc	gcc	ggc	ctc	tgt	ttc	ttg	ctg	ccc	agc	ctc	ttt	cac	ctg	1681
Leu	Thr	Gly	Ala	Gly	Leu	Cys	Phe	Leu	Leu	Pro	Ser	Leu	Phe	His	Leu	
		465					470					475				
cgc	ctg	ctc	tgg	cgc	aag	ctg	ctg	tgg	cac	caa	gtc	ttc	ttc	gac	gtc	1729
Arg	Leu	Leu	Trp	Arg	Lys	Leu	Leu	Trp	His	Gln	Val	Phe	Phe	Asp	Val	
	480					485					490					
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Ala	Ile	Phe	Val	Ile	Gly	Gly	Ile	Cys	Ser	Val	Ser	Gly	Phe	Val	His	
495					500					505					510	
tcc	ctc	gag	ggc	ctc	atc	gaa	gcc	tac	cga	acc	aac	gcg	gag	gac	tag	1825
Ser	Leu	Glu	Gly	Leu	Ile	Glu	Ala	Tyr	Arg	Thr	Asn	Ala	Glu	Asp	*	

515

520

525

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&lt;210&gt; 10

&lt;211&gt; 525

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 10

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Phe Gln Ala Ala Thr Asp Glu Glu Ala Val Gly Phe Ala His Cys Asp
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Asp Leu Asp Phe Glu His Arg Gln Gly Leu Gln Met Asp Ile Leu Lys
50          55          60
Ala Glu Gly Glu Pro Cys Gly Asp Glu Gly Ala Glu Ala Pro Val Glu
65          70          75          80
Gly Asp Ile His Tyr Gln Arg Gly Ser Gly Ala Pro Leu Pro Pro Ser
85          90          95
Gly Ser Lys Asp Gln Val Gly Gly Gly Gly Glu Phe Gly Gly His Asp
100         105         110
Lys Pro Lys Ile Thr Ala Trp Glu Ala Gly Trp Asn Val Thr Asn Ala
115         120         125
Ile Gln Gly Met Phe Val Leu Gly Leu Pro Tyr Ala Ile Leu His Gly
130         135         140
Gly Tyr Leu Gly Leu Phe Leu Ile Ile Phe Ala Ala Val Val Cys Cys
145         150         155         160
Tyr Thr Gly Lys Ile Leu Ile Ala Cys Leu Tyr Glu Glu Asn Glu Asp
165         170         175
Gly Glu Val Val Arg Val Arg Asp Ser Tyr Val Ala Ile Ala Asn Ala
180         185         190
Cys Cys Ala Pro Arg Phe Pro Thr Leu Gly Gly Arg Val Val Asn Val
195         200         205
Ala Gln Ile Ile Glu Leu Val Met Thr Cys Ile Leu Tyr Val Val Val
210         215         220
Ser Gly Asn Leu Met Tyr Asn Ser Phe Pro Gly Leu Pro Val Ser Gln
225         230         235         240
Lys Ser Trp Ser Ile Ile Ala Thr Ala Val Leu Leu Pro Cys Ala Phe
245         250         255
Leu Lys Asn Leu Lys Ala Val Ser Lys Phe Ser Leu Leu Cys Thr Leu
260         265         270
Ala His Phe Val Ile Asn Ile Leu Val Ile Ala Tyr Cys Leu Ser Arg
275         280         285
Ala Arg Asp Trp Ala Trp Glu Lys Val Lys Phe Tyr Ile Asp Val Lys
290         295         300
Lys Phe Pro Ile Ser Ile Gly Ile Ile Val Phe Ser Tyr Thr Ser Gln

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Ile	Phe	Leu	Pro	Ser	Leu	Glu	Gly	Asn	Met	Gln	Gln	Pro	Ser	Glu
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His	Cys	Met	Met	Asn	Trp	Thr	His	Ile	Ala	Ala	Cys	Val	Leu	Lys
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Leu	Phe	Ala	Leu	Val	Ala	Tyr	Leu	Thr	Trp	Ala	Asp	Glu	Thr	Lys
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Val	Ile	Thr	Asp	Asn	Leu	Pro	Gly	Ser	Ile	Arg	Ala	Val	Val	Asn
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Phe	Leu	Val	Ala	Lys	Ala	Leu	Leu	Ser	Tyr	Pro	Leu	Pro	Phe	Phe
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Ala	Val	Glu	Val	Leu	Glu	Lys	Ser	Leu	Phe	Gln	Glu	Gly	Ser	Arg
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Phe	Phe	Pro	Ala	Cys	Tyr	Ser	Gly	Asp	Gly	Arg	Leu	Lys	Ser	Trp
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Leu	Thr	Leu	Arg	Cys	Ala	Leu	Val	Val	Phe	Thr	Leu	Leu	Met	Ala
	435						440					445		
Tyr	Val	Pro	His	Phe	Ala	Leu	Leu	Met	Gly	Leu	Thr	Gly	Ser	Leu
	450					455				460				
Gly	Ala	Gly	Leu	Cys	Phe	Leu	Leu	Pro	Ser	Leu	Phe	His	Leu	Arg
465					470					475				480
Leu	Trp	Arg	Lys	Leu	Leu	Trp	His	Gln	Val	Phe	Phe	Asp	Val	Ala
			485					490						495
Phe	Val	Ile	Gly	Gly	Ile	Cys	Ser	Val	Ser	Gly	Phe	Val	His	Ser
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cct gag cct gct ggc cac acc gtt ctg tgg atc ttc tca ttg cta gtc	96
Pro Glu Pro Ala Gly His Thr Val Leu Trp Ile Phe Ser Leu Leu Val	
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cac gga gtc acc ttt gtc ttc ggg gtc ctg ggc aat ggg ctt gtg atc	144
His Gly Val Thr Phe Val Phe Gly Val Leu Gly Asn Gly Leu Val Ile	
35 40 45	
tgg gtg gct gga ttc cgg atg aca cgc aca gtc aac acc atc tgt tac	192
Trp Val Ala Gly Phe Arg Met Thr Arg Thr Val Asn Thr Ile Cys Tyr	
50 55 60	
ctg aac ctg gcc cta gct gac ttc tct ttc agt gcc atc cta cca ttc	240
Leu Asn Leu Ala Leu Ala Asp Phe Ser Phe Ser Ala Ile Leu Pro Phe	
65 70 75 80	
cga atg gtc tca gtc gcc atg aga gaa aaa tgg cct ttt gcg tca ttc	288
Arg Met Val Ser Val Ala Met Arg Glu Lys Trp Pro Phe Ala Ser Phe	

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cta	tgt	aag	tta	ggt	cat	ggt	atg	ata	gac	atc	aac	ctg	ttt	gtc	agt	336				
Leu	Cys	Lys	Leu	Val	His	Val	Met	Ile	Asp	Ile	Asn	Leu	Phe	Val	Ser					
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gtc	tac	ctg	atc	acc	atc	att	gct	ctg	gac	cgc	tgt	att	tgt	gtc	ctg	384				
Val	Tyr	Leu	Ile	Thr	Ile	Ile	Ala	Leu	Asp	Arg	Cys	Ile	Cys	Val	Leu					
		115					120					125								
cat	cca	gcc	tgg	gcc	cag	aac	cat	cgc	acc	atg	agt	ctg	gcc	aag	agg	432				
His	Pro	Ala	Trp	Ala	Gln	Asn	His	Arg	Thr	Met	Ser	Leu	Ala	Lys	Arg					
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gtg	atg	acg	gga	ctc	tgg	att	ttc	acc	ata	gtc	ctt	acc	tta	cca	aat	480				
Val	Met	Thr	Gly	Leu	Trp	Ile	Phe	Thr	Ile	Val	Leu	Thr	Leu	Pro	Asn					
					150					155					160					
ttc	atc	ttc	tgg	act	aca	ata	agt	act	acg	aat	ggg	gac	aca	tac	tgt	528				
Phe	Ile	Phe	Trp	Thr	Thr	Ile	Ser	Thr	Thr	Asn	Gly	Asp	Thr	Tyr	Cys					
				165					170					175						
att	ttc	aac	ttt	gca	ttc	tgg	ggt	gac	act	gct	gta	gag	agg	ttg	aac	576				
Ile	Phe	Asn	Phe	Ala	Phe	Trp	Gly	Asp	Thr	Ala	Val	Glu	Arg	Leu	Asn					
			180					185					190							
gtg	ttc	att	acc	atg	gcc	aag	gtc	ttt	ctg	atc	ctc	cac	ttc	att	att	624				
Val	Phe	Ile	Thr	Met	Ala	Lys	Val	Phe	Leu	Ile	Leu	His	Phe	Ile	Ile					
		195					200					205								
ggc	ttc	acg	gtg	cct	atg	tcc	atc	atc	aca	gtc	tgc	tat	ggg	atc	atc	672				
Gly	Phe	Thr	Val	Pro	Met	Ser	Ile	Ile	Thr	Val	Cys	Tyr	Gly	Ile	Ile					
		210				215					220									
gct	gcc	aaa	att	cac	aga	aac	cac	atg	att	aaa	tcc	agc	cgt	ccc	tta	720				
Ala	Ala	Lys	Ile	His	Arg	Asn	His	Met	Ile	Lys	Ser	Ser	Arg	Pro	Leu					
		225			230					235					240					
cgt	gtc	ttc	gct	gct	gtg	gtg	gct	tct	ttc	ttc	atc	tgt	tgg	ttc	cct	768				
Arg	Val	Phe	Ala	Ala	Val	Val	Ala	Ser	Phe	Phe	Ile	Cys	Trp	Phe	Pro					
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tat	gaa	cta	att	ggc	att	cta	atg	gca	gtc	tgg	ctc	aaa	gag	atg	ttg	816				
Tyr	Glu	Leu	Ile	Gly	Ile	Leu	Met	Ala	Val	Trp	Leu	Lys	Glu	Met	Leu					
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tta	aat	ggc	aaa	tac	aaa	atc	att	ctt	gtc	ctg	att	aac	cca	aca	agc	864				
Leu	Asn	Gly	Lys	Tyr	Lys	Ile	Ile	Leu	Val	Leu	Ile	Asn	Pro	Thr	Ser					
		275					280					285								
tcc	ttg	gcc	ttt	ttt	aac	agc	tgc	ctc	aac	cca	att	ctc	tac	gtc	ttt	912				
Ser	Leu	Ala	Phe	Phe	Asn	Ser	Cys	Leu	Asn	Pro	Ile	Leu	Tyr	Val	Phe					
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Met	Gly	Arg	Asn	Phe	Gln	Glu	Arg	Leu	Ile	Arg	Ser	Leu	Pro	Thr	Ser					
					310					315					320					
ttg	gag	agg	gcc	ctg	act	gag	gtc	cct	gac	tca	gcc	cag	acc	agc	aac	1008				
Leu	Glu	Arg	Ala	Leu	Thr	Glu	Val	Pro	Asp	Ser	Ala	Gln	Thr	Ser	Asn					
				325					330					335						

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 His Gly Val Thr Phe Val Phe Gly Val Leu Gly Asn Gly Leu Val Ile  
 35 40 45  
 Trp Val Ala Gly Phe Arg Met Thr Arg Thr Val Asn Thr Ile Cys Tyr  
 50 55 60  
 Leu Asn Leu Ala Leu Ala Asp Phe Ser Phe Ser Ala Ile Leu Pro Phe  
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 Arg Met Val Ser Val Ala Met Arg Glu Lys Trp Pro Phe Ala Ser Phe  
 85 90 95  
 Leu Cys Lys Leu Val His Val Met Ile Asp Ile Asn Leu Phe Val Ser  
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 Val Tyr Leu Ile Thr Ile Ile Ala Leu Asp Arg Cys Ile Cys Val Leu  
 115 120 125  
 His Pro Ala Trp Ala Gln Asn His Arg Thr Met Ser Leu Ala Lys Arg  
 130 135 140  
 Val Met Thr Gly Leu Trp Ile Phe Thr Ile Val Leu Thr Leu Pro Asn  
 145 150 155 160  
 Phe Ile Phe Trp Thr Thr Ile Ser Thr Thr Asn Gly Asp Thr Tyr Cys  
 165 170 175  
 Ile Phe Asn Phe Ala Phe Trp Gly Asp Thr Ala Val Glu Arg Leu Asn  
 180 185 190  
 Val Phe Ile Thr Met Ala Lys Val Phe Leu Ile Leu His Phe Ile Ile  
 195 200 205  
 Gly Phe Thr Val Pro Met Ser Ile Ile Thr Val Cys Tyr Gly Ile Ile  
 210 215 220  
 Ala Ala Lys Ile His Arg Asn His Met Ile Lys Ser Ser Arg Pro Leu  
 225 230 235 240  
 Arg Val Phe Ala Ala Val Val Ala Ser Phe Phe Ile Cys Trp Phe Pro  
 245 250 255  
 Tyr Glu Leu Ile Gly Ile Leu Met Ala Val Trp Leu Lys Glu Met Leu  
 260 265 270  
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 275 280 285  
 Ser Leu Ala Phe Phe Asn Ser Cys Leu Asn Pro Ile Leu Tyr Val Phe  
 290 295 300  
 Met Gly Arg Asn Phe Gln Glu Arg Leu Ile Arg Ser Leu Pro Thr Ser  
 305 310 315 320  
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 Phe Ala Asn Phe Arg Arg Ile Leu Arg Leu Ser Thr Phe Glu Lys Arg  
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aag tcc cgc gaa tat gag cac gtc cgc cgc gac ctg gac ccc aac gag 152  
 Lys Ser Arg Glu Tyr Glu His Val Arg Arg Asp Leu Asp Pro Asn Glu  
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 Val Trp Glu Ile Val Gly Glu Leu Gly Asp Gly Ala Phe Gly Lys Val  
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tac aag gcc aag aat aag gag acg ggt gct ttg gct gcg gcc aaa gtc 248  
 Tyr Lys Ala Lys Asn Lys Glu Thr Gly Ala Leu Ala Ala Ala Lys Val  
 55 60 65

att gaa acc aag agt gag gag gag ctg gag gac tac atc gtg gag att 296  
 Ile Glu Thr Lys Ser Glu Glu Glu Leu Glu Asp Tyr Ile Val Glu Ile  
 70 75 80

gag atc ctg gcc acc tgc gac cac ccc tac att gtg aag ctc ctg gga 344  
 Glu Ile Leu Ala Thr Cys Asp His Pro Tyr Ile Val Lys Leu Leu Gly  
 85 90 95

gcc tac tat cac gac ggg aag ctg tgg atc atg att gag ttc tgt cca 392  
 Ala Tyr Tyr His Asp Gly Lys Leu Trp Ile Met Ile Glu Phe Cys Pro  
 100 105 110

ggg gga gcc gtg gac gcc atc atg ctg gag ctg gac aga ggc ctc acg 440  
 Gly Gly Ala Val Asp Ala Ile Met Leu Glu Leu Asp Arg Gly Leu Thr  
 115 120 125 130

gag ccc cag ata cag gtg gtt tgc cgc cag atg cta gaa gcc ctc aac 488  
 Glu Pro Gln Ile Gln Val Val Cys Arg Gln Met Leu Glu Ala Leu Asn  
 135 140 145

ttc ctg cac agc aag agg atc atc cac cga gat ctg aaa gct ggc aac 536  
 Phe Leu His Ser Lys Arg Ile Ile His Arg Asp Leu Lys Ala Gly Asn  
 150 155 160

gtg ctg atg acc ctc gag gga gac atc agg ctg gct gac ttt ggt gtg 584  
 Val Leu Met Thr Leu Glu Gly Asp Ile Arg Leu Ala Asp Phe Gly Val  
 165 170 175

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Ser Ala Lys Asn Leu Lys Thr Leu Gln Lys Arg Asp Ser Phe Ile Gly	
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acg cct tac tgg atg gcc ccc gag gtg gtc atg tgt gag acc atg aaa	680
Thr Pro Tyr Trp Met Ala Pro Glu Val Val Met Cys Glu Thr Met Lys	
195 200 205 210	
gac acg ccc tac gac tac aaa gcc gac atc tgg tcc ctg ggc atc acg	728
Asp Thr Pro Tyr Asp Tyr Lys Ala Asp Ile Trp Ser Leu Gly Ile Thr	
215 220 225	
ctg att gag atg gcc cag atc gag ccg cca cac cac gag ctc aac ccc	776
Leu Ile Glu Met Ala Gln Ile Glu Pro Pro His His Glu Leu Asn Pro	
230 235 240	
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Met Arg Val Leu Leu Lys Ile Ala Lys Ser Asp Pro Pro Thr Leu Leu	
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acg ccc tcc aag tgg tct gta gag ttc cgt gac ttc ctg aag ata gcc	872
Thr Pro Ser Lys Trp Ser Val Glu Phe Arg Asp Phe Leu Lys Ile Ala	
260 265 270	
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Leu Asp Lys Asn Pro Glu Thr Arg Pro Ser Ala Ala Gln Leu Leu Glu	
275 280 285 290	
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His Pro Phe Val Ser Ser Ile Thr Ser Asn Lys Ala Leu Arg Glu Leu	
295 300 305	
gtg gct gag gcc aag gcc gag gtg atg gaa gag atc gaa gac ggc cgg	1016
Val Ala Glu Ala Lys Ala Glu Val Met Glu Glu Ile Glu Asp Gly Arg	
310 315 320	
gat gag ggg gaa gag gag gac gcc gtg gat gcc gcc tcc acc ctg gag	1064
Asp Glu Gly Glu Glu Glu Asp Ala Val Asp Ala Ala Ser Thr Leu Glu	
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aac cat act cag aac tcc tct gag gtg agt ccg cca agc ctc aat gct	1112
Asn His Thr Gln Asn Ser Ser Glu Val Ser Pro Pro Ser Leu Asn Ala	
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gac aag cct ctc gag gag tca cct tcc acc ccg ctg gca ccc agc cag	1160
Asp Lys Pro Leu Glu Glu Ser Pro Ser Thr Pro Leu Ala Pro Ser Gln	
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tct cag gac agt gtg aat gag ccc tgc agc cag ccc tct ggg gac aga	1208
Ser Gln Asp Ser Val Asn Glu Pro Cys Ser Gln Pro Ser Gly Asp Arg	
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Ser Leu Gln Thr Thr Ser Pro Pro Val Val Ala Pro Gly Asn Glu Asn	
390 395 400	
ggc ctg gca gtg cct gtg ccc ctg cgg aag tcc cga ccc gtg tca atg	1304
Gly Leu Ala Val Pro Val Pro Leu Arg Lys Ser Arg Pro Val Ser Met	
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gat gcc aga att cag gta gcc cag gag aag caa gtt gct gag cag ggt	1352

Asp	Ala	Arg	Ile	Gln	Val	Ala	Gln	Glu	Lys	Gln	Val	Ala	Glu	Gln	Gly		
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Gly	Asp	Leu	Ser	Pro	Ala	Ala	Asn	Arg	Ser	Gln	Lys	Ala	Ser	Gln	Ser		
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cgg	ccc	aac	agc	agc	gcc	ctg	gag	acc	ttg	ggg	ggg	gag	aag	ctg	gcc	1448	
Arg	Pro	Asn	Ser	Ser	Ala	Leu	Glu	Thr	Leu	Gly	Gly	Glu	Lys	Leu	Ala		
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aat	ggc	agc	ctg	gag	cca	cct	gcc	cag	gca	gct	cca	ggg	cct	tcc	aag	1496	
Asn	Gly	Ser	Leu	Glu	Pro	Pro	Ala	Gln	Ala	Ala	Pro	Gly	Pro	Ser	Lys		
			470					475					480				
agg	gac	tcg	gac	tgc	agc	agc	ctc	tgc	acc	tct	gag	agc	atg	gac	tat	1544	
Arg	Asp	Ser	Asp	Cys	Ser	Ser	Leu	Cys	Thr	Ser	Glu	Ser	Met	Asp	Tyr		
		485					490					495					
ggg	acc	aat	ctc	tcc	act	gac	ctg	tcg	ctg	aac	aaa	gag	atg	ggc	tct	1592	
Gly	Thr	Asn	Leu	Ser	Thr	Asp	Leu	Ser	Leu	Asn	Lys	Glu	Met	Gly	Ser		
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ctg	tcc	atc	aag	gac	ccg	aaa	ctg	tac	aaa	aaa	acc	ctc	aag	cgg	aca	1640	
Leu	Ser	Ile	Lys	Asp	Pro	Lys	Leu	Tyr	Lys	Lys	Thr	Leu	Lys	Arg	Thr		
515					520					525					530		
cgc	aaa	ttt	gtg	gtg	gat	ggg	gtg	gag	gtg	agc	atc	acc	acc	tcc	aag	1688	
Arg	Lys	Phe	Val	Val	Asp	Gly	Val	Glu	Val	Ser	Ile	Thr	Thr	Ser	Lys		
				535				540						545			
atc	atc	agc	gaa	gat	gag	aag	aag	gat	gag	gag	atg	aga	ttt	ctc	agg	1736	
Ile	Ile	Ser	Glu	Asp	Glu	Lys	Lys	Asp	Glu	Glu	Met	Arg	Phe	Leu	Arg		
			550					555					560				
cgc	cag	gaa	ctc	cga	gag	ctt	cgg	ctg	ctc	cag	aaa	gaa	gag	cat	cgg	1784	
Arg	Gln	Glu	Leu	Arg	Glu	Leu	Arg	Leu	Leu	Gln	Lys	Glu	Glu	His	Arg		
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aac	cag	acc	cag	ctg	agt	aac	aag	cat	gag	ctg	cag	ctg	gag	caa	atg	1832	
Asn	Gln	Thr	Gln	Leu	Ser	Asn	Lys	His	Glu	Leu	Gln	Leu	Glu	Gln	Met		
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His	Lys	Arg	Phe	Glu	Gln	Glu	Ile	Asn	Ala	Lys	Lys	Lys	Phe	Phe	Asp		
595					600				605						610		
acg	gaa	tta	gag	aac	ctg	gag	cgt	cag	caa	aag	cag	caa	gtg	gag	aag	1928	
Thr	Glu	Leu	Glu	Asn	Leu	Glu	Arg	Gln	Gln	Lys	Gln	Gln	Val	Glu	Lys		
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atg	gag	caa	gac	cat	gcc	gtg	cgc	cgc	cgg	gag	gag	gcc	agg	cgg	atc	1976	
Met	Glu	Gln	Asp	His	Ala	Val	Arg	Arg	Arg	Glu	Glu	Ala	Arg	Arg	Ile		
			630					635					640				
cgc	ctg	gag	cag	gat	cgg	gac	tac	acc	agg	ttc	caa	gag	cag	ctc	aaa	2024	
Arg	Leu	Glu	Gln	Asp	Arg	Asp	Tyr	Thr	Arg	Phe	Gln	Glu	Gln	Leu	Lys		
			645				650					655					
ctg	atg	aag	aaa	gag	gtg	aag	aac	gag	gtg	gag	aag	ctc	ccc	cga	cag	2072	
Leu	Met	Lys	Lys	Glu	Val	Lys	Asn	Glu	Val	Glu	Lys	Leu	Pro	Arg	Gln		



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cag cgg aag gaa agc atg aag cag aag atg gag gag cac acg cag aaa Gln Arg Lys Glu Ser Met Lys Gln Lys Met Glu Glu His Thr Gln Lys 675 680 685 690			2120
aag cag ctt ctt gac cgg gac ttt gta gcc aag cag aag gag gac ctg Lys Gln Leu Leu Asp Arg Asp Phe Val Ala Lys Gln Lys Glu Asp Leu 695 700 705			2168
gag ctg gcc atg aag agg ctc acc acc gac aac agg cgg gag atc tgt Glu Leu Ala Met Lys Arg Leu Thr Thr Asp Asn Arg Arg Glu Ile Cys 710 715 720			2216
gac aag gag cgc gag tgc ctc atg aag aag cag gag ctc ctt cga gac Asp Lys Glu Arg Glu Cys Leu Met Lys Lys Gln Glu Leu Leu Arg Asp 725 730 735			2264
cgg gaa gca gcc ctg tgg gag atg gaa gag cac cag ctg cag gag agg Arg Glu Ala Ala Leu Trp Glu Met Glu Glu His Gln Leu Gln Glu Arg 740 745 750			2312
cac cag ctg gtg aag cag cag ctc aaa gac cag tac ttc ctc cag cgg His Gln Leu Val Lys Gln Gln Leu Lys Asp Gln Tyr Phe Leu Gln Arg 755 760 765 770			2360
cac gag ctg ctg cgc aag cat gag aag gag cgg gag cag atg cag cgc His Glu Leu Leu Arg Lys His Glu Lys Glu Arg Glu Gln Met Gln Arg 775 780 785			2408
tac aac cag cgc atg ata gag cag ctg aag gtg cgg cag caa cag gaa Tyr Asn Gln Arg Met Ile Glu Gln Leu Lys Val Arg Gln Gln Gln Glu 790 795 800			2456
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gag cag cgt gag aag atc aag cag ttc tcc cag cag gag gag aag agg Glu Gln Arg Glu Lys Ile Lys Gln Phe Ser Gln Gln Glu Glu Lys Arg 835 840 845 850			2600
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cgg gac atg ctg gcg cag tgt gag agc aac atg agc gag ctg cag cag Arg Asp Met Leu Ala Gln Cys Glu Ser Asn Met Ser Glu Leu Gln Gln 870 875 880			2696
ctg cag aat gaa aag tgc cac ctc ctg gta gag cac gaa acc cag aaa Leu Gln Asn Glu Lys Cys His Leu Leu Val Glu His Glu Thr Gln Lys 885 890 895			2744
ctg aag gcc ctg gat gag agc cat aac cag aac ctg aag gaa tgg cgg Leu Lys Ala Leu Asp Glu Ser His Asn Gln Asn Leu Lys Glu Trp Arg 900 905 910			2792

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 Asp Lys Leu Arg Pro Arg Lys Lys Ala Leu Glu Glu Asp Leu Asn Gln  
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aag aag cgg gag cag gag atg ttc ttc aag ctg agc gag gag gcg gag 2888  
 Lys Lys Arg Glu Gln Glu Met Phe Phe Lys Leu Ser Glu Glu Ala Glu  
 935 940 945

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 Cys Pro Asn Pro Ser Thr Pro Ser Lys Ala Ala Lys Phe Phe Pro Tyr  
 950 955 960

agt tct gcg gat gct tct taa caaccgcccc gggctgtggc tggcagcttg 2987  
 Ser Ser Ala Asp Ala Ser \*  
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 Lys Val Tyr Lys Ala Lys Asn Lys Glu Thr Gly Ala Leu Ala Ala Ala  
 50 55 60  
 Lys Val Ile Glu Thr Lys Ser Glu Glu Glu Leu Glu Asp Tyr Ile Val  
 65 70 75 80  
 Glu Ile Glu Ile Leu Ala Thr Cys Asp His Pro Tyr Ile Val Lys Leu  
 85 90 95  
 Leu Gly Ala Tyr His Asp Gly Lys Leu Trp Ile Met Ile Glu Phe  
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 Cys Pro Gly Gly Ala Val Asp Ala Ile Met Leu Glu Leu Asp Arg Gly  
 115 120 125

Leu	Thr	Glu	Pro	Gln	Ile	Gln	Val	Val	Cys	Arg	Gln	Met	Leu	Glu	Ala
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Gly	Asn	Val	Leu	Met	Thr	Leu	Glu	Gly	Asp	Ile	Arg	Leu	Ala	Asp	Phe
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Gly	Val	Ser	Ala	Lys	Asn	Leu	Lys	Thr	Leu	Gln	Lys	Arg	Asp	Ser	Phe
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Ile	Gly	Thr	Pro	Tyr	Trp	Met	Ala	Pro	Glu	Val	Val	Met	Cys	Glu	Thr
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Met	Lys	Asp	Thr	Pro	Tyr	Asp	Tyr	Lys	Ala	Asp	Ile	Trp	Ser	Leu	Gly
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Asn	Pro	Met	Arg	Val	Leu	Leu	Lys	Ile	Ala	Lys	Ser	Asp	Pro	Pro	Thr
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Leu	Leu	Thr	Pro	Ser	Lys	Trp	Ser	Val	Glu	Phe	Arg	Asp	Phe	Leu	Lys
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Ile	Ala	Leu	Asp	Lys	Asn	Pro	Glu	Thr	Arg	Pro	Ser	Ala	Ala	Gln	Leu
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Leu	Glu	His	Pro	Phe	Val	Ser	Ser	Ile	Thr	Ser	Asn	Lys	Ala	Leu	Arg
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Glu	Leu	Val	Ala	Glu	Ala	Lys	Ala	Glu	Val	Met	Glu	Glu	Ile	Glu	Asp
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Gly	Arg	Asp	Glu	Gly	Glu	Glu	Glu	Asp	Ala	Val	Asp	Ala	Ala	Ser	Thr
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Leu	Glu	Asn	His	Thr	Gln	Asn	Ser	Ser	Glu	Val	Ser	Pro	Pro	Ser	Leu
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Asn	Ala	Asp	Lys	Pro	Leu	Glu	Glu	Ser	Pro	Ser	Thr	Pro	Leu	Ala	Pro
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Ser	Gln	Ser	Gln	Asp	Ser	Val	Asn	Glu	Pro	Cys	Ser	Gln	Pro	Ser	Gly
	370				375						380				
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385				390						395					400
Glu	Asn	Gly	Leu	Ala	Val	Pro	Val	Pro	Leu	Arg	Lys	Ser	Arg	Pro	Val
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Ser	Met	Asp	Ala	Arg	Ile	Gln	Val	Ala	Gln	Glu	Lys	Gln	Val	Ala	Glu
	420						425						430		
Gln	Gly	Gly	Asp	Leu	Ser	Pro	Ala	Ala	Asn	Arg	Ser	Gln	Lys	Ala	Ser
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Gln	Ser	Arg	Pro	Asn	Ser	Ser	Ala	Leu	Glu	Thr	Leu	Gly	Gly	Glu	Lys
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Leu	Ala	Asn	Gly	Ser	Leu	Glu	Pro	Pro	Ala	Gln	Ala	Ala	Pro	Gly	Pro
465				470						475					480
Ser	Lys	Arg	Asp	Ser	Asp	Cys	Ser	Ser	Leu	Cys	Thr	Ser	Glu	Ser	Met
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Ser	Lys	Ile	Ile	Ser	Glu	Asp	Glu	Lys	Lys	Asp	Glu	Glu	Met	Arg	Phe
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Leu	Arg	Arg	Gln	Glu	Leu	Arg	Glu	Leu	Arg	Leu	Leu	Gln	Lys	Glu	Glu
			565						570					575	
His	Arg	Asn	Gln	Thr	Gln	Leu	Ser	Asn	Lys	His	Glu	Leu	Gln	Leu	Glu
		580						585					590		
Gln	Met	His	Lys	Arg	Phe	Glu	Gln	Glu	Ile	Asn	Ala	Lys	Lys	Lys	Phe
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Phe	Asp	Thr	Glu	Leu	Glu	Asn	Leu	Glu	Arg	Gln	Gln	Lys	Gln	Gln	Val

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Glu Lys Met Glu Gln Asp	His Ala Val Arg Arg	Arg Glu Glu Ala Arg			
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Arg Ile Arg Leu Glu Gln	Asp Arg Asp Tyr Thr	Arg Phe Gln Glu Gln			
	645	650	655		
Leu Lys Leu Met Lys Lys	Glu Val Lys Asn Glu Val	Glu Lys Leu Pro			
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Arg Gln Gln Arg Lys Glu	Ser Met Lys Gln Lys Met	Glu Glu His Thr			
	675	680	685		
Gln Lys Lys Gln Leu Leu	Asp Arg Asp Phe Val Ala	Lys Gln Lys Glu			
	690	695	700		
Asp Leu Glu Leu Ala Met	Lys Arg Leu Thr Thr	Asp Asn Arg Arg Glu			
705	710	715	720		
Ile Cys Asp Lys Glu Arg	Glu Cys Leu Met Lys Lys	Gln Glu Leu Leu			
	725	730	735		
Arg Asp Arg Glu Ala Ala	Leu Trp Glu Met Glu Glu	His Gln Leu Gln			
	740	745	750		
Glu Arg His Gln Leu Val	Lys Gln Gln Leu Lys Asp	Gln Tyr Phe Leu			
	755	760	765		
Gln Arg His Glu Leu Leu	Arg Lys His Glu Lys Glu	Arg Glu Gln Met			
	770	775	780		
Gln Arg Tyr Asn Gln Arg	Met Ile Glu Gln Leu Lys	Val Arg Gln Gln			
785	790	795	800		
Gln Glu Lys Ala Arg Leu	Pro Lys Ile Gln Arg Ser	Glu Gly Lys Thr			
	805	810	815		
Arg Met Ala Met Tyr Lys	Lys Ser Leu His Ile Asn	Gly Gly Gly Ser			
	820	825	830		
Ala Ala Glu Gln Arg Glu	Lys Ile Lys Gln Phe Ser	Gln Gln Glu Glu			
	835	840	845		
Lys Arg Gln Lys Ser Glu	Arg Leu Gln Gln Gln Lys	His Glu Asn			
	850	855	860		
Gln Met Arg Asp Met Leu	Ala Gln Cys Glu Ser Asn	Met Ser Glu Leu			
865	870	875	880		
Gln Gln Leu Gln Asn Glu	Lys Cys His Leu Leu Val	Glu His Glu Thr			
	885	890	895		
Gln Lys Leu Lys Ala Leu	Asp Glu Ser His Asn Gln	Asn Leu Lys Glu			
	900	905	910		
Trp Arg Asp Lys Leu Arg	Pro Arg Lys Lys Ala Leu	Glu Glu Asp Leu			
	915	920	925		
Asn Gln Lys Lys Arg Glu	Gln Glu Met Phe Phe Lys	Leu Ser Glu Glu			
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Ala Glu Cys Pro Asn Pro	Ser Thr Pro Ser Lys Ala	Ala Lys Phe Phe			
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Pro Tyr Ser Ser Ala Asp	Ala Ser				
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 Met Tyr Phe Cys Trp Gly Ala Asp Ser Arg  
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Glu Leu Gln Arg Arg Thr Ala Gly Ser Pro Gly Ala Glu Leu Leu	
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cag gcg gcc agc ggg gag cgc cac tct ctg ctg ctg ctg acc aac cac	207
Gln Ala Ala Ser Gly Glu Arg His Ser Leu Leu Leu Leu Thr Asn His	
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agg gtc ctc tcg tgc gga gac aac agc agg ggt cag ctg ggc cgc agg	255
Arg Val Leu Ser Cys Gly Asp Asn Ser Arg Gly Gln Leu Gly Arg Arg	
45 50 55	
ggc gcg cag cgc ggg gag ctg cca gaa cca att cag gca ttg gaa acc	303
Gly Ala Gln Arg Gly Glu Leu Pro Glu Pro Ile Gln Ala Leu Glu Thr	
60 65 70	
cta att gtt gat ctc gtg agc tgc ggg aag gag cac tcc ctg gct gtg	351
Leu Ile Val Asp Leu Val Ser Cys Gly Lys Glu His Ser Leu Ala Val	
75 80 85 90	
tgc cac aaa gga agg gtc ttc gca tgg gga gct ggt tct gaa ggg cag	399
Cys His Lys Gly Arg Val Phe Ala Trp Gly Ala Gly Ser Glu Gly Gln	
95 100 105	
ctg ggg att gga gaa ttc aag gaa ata agt ttc aca cct aag aaa ata	447
Leu Gly Ile Gly Glu Phe Lys Glu Ile Ser Phe Thr Pro Lys Lys Ile	
110 115 120	
atg act ctg aat gat ata aaa ata ata caa gtt tcc tgt gga cac tac	495
Met Thr Leu Asn Asp Ile Lys Ile Ile Gln Val Ser Cys Gly His Tyr	
125 130 135	
cac tcc ctg gca tta tca aaa gat agc caa gtg ttt tcg tgg gga aag	543
His Ser Leu Ala Leu Ser Lys Asp Ser Gln Val Phe Ser Trp Gly Lys	
140 145 150	
aac agc cat ggg cag ctg ggc ttg ggg aag gag ttc ccc tcc caa gcc	591
Asn Ser His Gly Gln Leu Gly Leu Gly Lys Glu Phe Pro Ser Gln Ala	
155 160 165 170	
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Ser Pro Gln Arg Val Arg Ser Leu Glu Gly Ile Pro Leu Ala Gln Val	
175 180 185	
gct gcc gga ggg gct cac agc ttt gcc ctg tct ctc tgt ggg act tcg	687
Ala Ala Gly Gly Ala His Ser Phe Ala Leu Ser Leu Cys Gly Thr Ser	
190 195 200	
ttt ggc tgg gga agt aac agt gcc ggg cag ctg gcc ctc agt ggg cgt	735
Phe Gly Trp Gly Ser Asn Ser Ala Gly Gln Leu Ala Leu Ser Gly Arg	
205 210 215	
aat gtc cca gtg caa agc aac aag cct ctc tca gtc ggt gca ctg aag	783
Asn Val Pro Val Gln Ser Asn Lys Pro Leu Ser Val Gly Ala Leu Lys	
220 225 230	
aat cta ggt gtg gtt tat atc agc tgt ggt gat gca cac act gcg gtg	831
Asn Leu Gly Val Val Tyr Ile Ser Cys Gly Asp Ala His Thr Ala Val	
235 240 245 250	

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Leu Thr Gln Asp Gly Lys Val Phe Thr Phe Gly Asp Asn Arg Ser Gly	
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cag ctg gga tac agc ccc act cct gag aag aga ggt cca caa ctt gtg	927
Gln Leu Gly Tyr Ser Pro Thr Pro Glu Lys Arg Gly Pro Gln Leu Val	
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gaa aga att gat ggc cta gtt tcg cag ata gat tgt gga agt tat cac	975
Glu Arg Ile Asp Gly Leu Val Ser Gln Ile Asp Cys Gly Ser Tyr His	
285 290 295	
acc ctg gca tat gtg cac acc act ggt cag gtg gta tct ttt ggt cat	1023
Thr Leu Ala Tyr Val His Thr Thr Gly Gln Val Val Ser Phe Gly His	
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gga cca agt gac aca agc aag cca act cat ccg gag gcc ctg aca gag	1071
Gly Pro Ser Asp Thr Ser Lys Pro Thr His Pro Glu Ala Leu Thr Glu	
315 320 325 330	
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Asn Phe Asp Ile Ser Cys Leu Ile Ser Ala Glu Asp Phe Val Asp Val	
335 340 345	
caa gtc aaa cac att ttt gct gga aca tat gcc aac ttt gtg aca act	1167
Gln Val Lys His Ile Phe Ala Gly Thr Tyr Ala Asn Phe Val Thr Thr	
350 355 360	
cat cag gat act agt tcc aca cgt gct ccc ggg aaa acc ctg cca gaa	1215
His Gln Asp Thr Ser Ser Thr Arg Ala Pro Gly Lys Thr Leu Pro Glu	
365 370 375	
ata agc cga att agc cag tcc atg gca gaa aaa tgg ata gca gtg aaa	1263
Ile Ser Arg Ile Ser Gln Ser Met Ala Glu Lys Trp Ile Ala Val Lys	
380 385 390	
aga aga agt act gaa cat gaa atg gct aaa agt gaa att aga atg ata	1311
Arg Arg Ser Thr Glu His Glu Met Ala Lys Ser Glu Ile Arg Met Ile	
395 400 405 410	
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Phe Ser Ser Pro Ala Cys Leu Thr Ala Ser Phe Leu Lys Lys Arg Gly	
415 420 425	
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Thr Gly Glu Thr Thr Ser Ile Asp Val Asp Leu Glu Met Ala Arg Asp	
430 435 440	
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Thr Cys Leu Glu Asp Asp Leu Leu Arg Ala Leu Pro Cys His Ser Pro	
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His Gln Glu Ala Leu Ser Val Phe Leu Leu Pro Glu Cys Pro Val	
475 480 485 490	
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Trp	Ala	Phe	Leu	Gln	Glu	Ser	Ser	Leu	Asn	Pro	Leu	Ile	Gln	Met	Leu		
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Asp	His	Cys	Asn	Val	Lys	Ala	Leu	Leu	Gly	Met	Met	Lys	Glu	Leu	His		
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Lys	Val	Asn	Lys	Ala	Asn	Cys	Arg	Leu	Pro	Glu	Asn	Thr	Phe	Asn	Ile		
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Asn	Glu	Leu	Ser	Asn	Leu	Leu	Asn	Phe	Tyr	Ile	Asp	Arg	Gly	Arg	Gln		
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Leu	Phe	Arg	Asp	Asn	His	Leu	Ile	Pro	Ala	Glu	Thr	Pro	Ser	Pro	Val		
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Ile	Phe	Ser	Asp	Phe	Pro	Phe	Ile	Phe	Asn	Ser	Leu	Ser	Lys	Ile	Lys		
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Leu	Leu	Gln	Ala	Asp	Ser	His	Ile	Lys	Met	Gln	Met	Ser	Glu	Lys	Lys		
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cct	cca	tca	ccc	aga	ttt	ata	ctt	aga	gtc	aga	cga	agt	cgc	ctg	gtt	2127	
Pro	Pro	Ser	Pro	Arg	Phe	Ile	Leu	Arg	Val	Arg	Arg	Ser	Arg	Leu	Val		
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Lys	Asp	Ala	Leu	Arg	Gln	Leu	Ser	Gln	Ala	Glu	Ala	Thr	Asp	Phe	Cys		
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aaa	gta	tta	gtg	gtt	gaa	ttt	att	aat	gaa	att	tgt	cct	gag	tct	gga	2223	
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ggg	gtt	agt	tca	gag	ttc	ttc	cac	tgt	atg	ttt	gaa	gag	atg	acc	aag	2271	
Gly	Val	Ser	Ser	Glu	Phe	Phe	His	Cys	Met	Phe	Glu	Glu	Met	Thr	Lys		
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cca	gaa	tat	gga	atg	ttc	atg	tat	cct	gaa	atg	ggg	tcc	tgc	atg	tgg	2319	
Pro	Glu	Tyr	Gly	Met	Phe	Met	Tyr	Pro	Glu	Met	Gly	Ser	Cys	Met	Trp		

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Phe	Pro	Ala	Lys	Pro	Lys	Pro	Glu	Lys	Lys	Arg	Tyr	Phe	Leu	Phe	Gly					
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atg	ctg	tgt	gga	ctc	tcc	tta	ttc	aat	tta	aat	gtt	gct	aac	ctt	cct	2415				
Met	Leu	Cys	Gly	Leu	Ser	Leu	Phe	Asn	Leu	Asn	Val	Ala	Asn	Leu	Pro					
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ttc	cca	ctg	gct	ctg	tat	aaa	aaa	ctt	ctg	gac	caa	aag	cca	tca	ttg	2463				
Phe	Pro	Leu	Ala	Leu	Tyr	Lys	Lys	Leu	Leu	Asp	Gln	Lys	Pro	Ser	Leu					
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gaa	gat	tta	aaa	gaa	ctc	agt	cct	cgg	ttg	ggg	aag	agt	ttg	caa	gaa	2511				
Glu	Asp	Leu	Lys	Glu	Leu	Ser	Pro	Arg	Leu	Gly	Lys	Ser	Leu	Gln	Glu					
795					800					805					810					
gtt	cta	gat	gat	gct	gct	gat	gac	att	gga	gat	gcg	ctc	tgc	ata	cgc	2559				
Val	Leu	Asp	Asp	Ala	Ala	Asp	Asp	Ile	Gly	Asp	Ala	Leu	Cys	Ile	Arg					
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Tyr	Ile	Asp	Tyr	Ile	Phe	Asn	Val	Ser	Val	Lys	Ala	Val	Tyr	Glu	Glu					
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Phe	Gln	Arg	Gly	Phe	Tyr	Arg	Val	Cys	Glu	Lys	Glu	Ile	Leu	Arg	His					
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Lys	Ser	His	Pro	Thr	Ile	Gln	Leu	Phe	Trp	Lys	Ala	Phe	His	Lys	Leu					
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acc	ttg	gat	gaa	aag	aaa	aaa	ttc	ctc	ttt	ttc	ctt	aca	gga	cgt	gat	2943				
Thr	Leu	Asp	Glu	Lys	Lys	Lys	Phe	Leu	Phe	Phe	Leu	Thr	Gly	Arg	Asp					
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agg	ctg	cat	gca	aga	ggc	ata	cag	aaa	atg	gaa	ata	gta	ttt	cgc	tgt	2991				
Arg	Leu	His	Ala	Arg	Gly	Ile	Gln	Lys	Met	Glu	Ile	Val	Phe	Arg	Cys					
955					960				965						970					
cct	gaa	act	ttc	agt	gaa	aga	gat	cac	cca	aca	tca	ata	act	tgt	cat	3039				
Pro	Glu	Thr	Phe	Ser	Glu	Arg	Asp	His	Pro	Thr	Ser	Ile	Thr	Cys	His					
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aat att ctc tcc ctc cct aag tat tct aca atg gaa aga atg gag gaa 3087  
 Asn Ile Leu Ser Leu Pro Lys Tyr Ser Thr Met Glu Arg Met Glu Glu  
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 Ala Leu Gln Val Ala Ile Asn Asn Asn Arg Gly Phe Val Ser Pro Met  
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 Leu Thr Gln Ser \*  
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 Arg His Ser Leu Leu Leu Leu Thr Asn His Arg Val Leu Ser Cys Gly  
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 Asp Asn Ser Arg Gly Gln Leu Gly Arg Arg Gly Ala Gln Arg Gly Glu  
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 Ser Cys Gly Lys Glu His Ser Leu Ala Val Cys His Lys Gly Arg Val  
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 Phe Ala Trp Gly Ala Gly Ser Glu Gly Gln Leu Gly Ile Gly Glu Phe  
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 Lys Ile Ile Gln Val Ser Cys Gly His Tyr His Ser Leu Ala Leu Ser  
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 Lys Asp Ser Gln Val Phe Ser Trp Gly Lys Asn Ser His Gly Gln Leu  
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 Gly Leu Gly Lys Glu Phe Pro Ser Gln Ala Ser Pro Gln Arg Val Arg  
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 Ser Leu Glu Gly Ile Pro Leu Ala Gln Val Ala Ala Gly Gly Ala His  
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 Ser Phe Ala Leu Ser Leu Cys Gly Thr Ser Phe Gly Trp Gly Ser Asn  
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 Ser Ala Gly Gln Leu Ala Leu Ser Gly Arg Asn Val Pro Val Gln Ser  
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 Asn Lys Pro Leu Ser Val Gly Ala Leu Lys Asn Leu Gly Val Val Tyr  
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 Ile Ser Cys Gly Asp Ala His Thr Ala Val Leu Thr Gln Asp Gly Lys  
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 Val Phe Thr Phe Gly Asp Asn Arg Ser Gly Gln Leu Gly Tyr Ser Pro  
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 Thr Pro Glu Lys Arg Gly Pro Gln Leu Val Glu Arg Ile Asp Gly Leu



Leu Phe Asn Leu Asn Val Ala Asn Leu Pro Phe Pro Leu Ala Leu Tyr  
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 Lys Lys Leu Leu Asp Gln Lys Pro Ser Leu Glu Asp Leu Lys Glu Leu  
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 Ser Pro Arg Leu Gly Lys Ser Leu Gln Glu Val Leu Asp Asp Ala Ala  
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 Asp Asp Ile Gly Asp Ala Leu Cys Ile Arg Phe Ser Ile His Trp Asp  
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 Gln Asn Asp Val Asp Leu Ile Pro Asn Gly Ile Ser Ile Pro Val Asp  
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 Arg Val Cys Glu Lys Glu Ile Leu Arg His Phe Tyr Pro Glu Glu Leu  
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 Gln Asn Ser Lys Tyr Glu Gln Gly Tyr Gln Lys Ser His Pro Thr Ile  
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 Arg Asp His Pro Thr Ser Ile Thr Cys His Asn Ile Leu Ser Leu Pro  
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 Met Glu Leu  
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 Ala Phe Ala Ser Ser Ser Thr Leu His Gly Leu Ala His Ile Phe Ser  
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Gly	Ser	Leu	Ala	Val	Leu	Leu	Cys	Val	Cys	Thr	Glu	Arg	Val	Gln	Tyr		
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Tyr	Phe	His	Tyr	His	His	Val	Thr	Lys	Leu	Asp	Glu	Val	Ala	Ala	Ser		
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cag	ctt	acc	ttc	cct	gct	gtc	acg	ctg	tgc	aac	ctc	aac	gag	ttc	cgc	526	
Gln	Leu	Thr	Phe	Pro	Ala	Val	Thr	Leu	Cys	Asn	Leu	Asn	Glu	Phe	Arg		
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Phe	Ser	Gln	Val	Ser	Lys	Asn	Asp	Leu	Tyr	His	Ala	Gly	Glu	Leu	Leu		
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gcc	ctg	ctc	aac	aac	agg	tat	gag	ata	cca	gac	aca	cag	atg	gca	gat	622	
Ala	Leu	Leu	Asn	Asn	Arg	Tyr	Glu	Ile	Pro	Asp	Thr	Gln	Met	Ala	Asp		
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Glu	Lys	Gln	Leu	Glu	Ile	Leu	Gln	Asp	Lys	Ala	Asn	Phe	Arg	Ser	Phe		
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Lys	Pro	Lys	Pro	Phe	Asn	Met	Arg	Glu	Phe	Tyr	Asp	Arg	Ala	Gly	His		
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gac	att	cga	gac	atg	ctg	ctc	tcc	tgc	cac	ttc	cgg	ggg	gag	gtc	tgc	766	
Asp	Ile	Arg	Asp	Met	Leu	Leu	Ser	Cys	His	Phe	Arg	Gly	Glu	Val	Cys		
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Ser	Ala	Glu	Asp	Phe	Lys	Val	Val	Phe	Thr	Arg	Tyr	Gly	Lys	Cys	Tyr		
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Thr	Phe	Asn	Ser	Gly	Arg	Asp	Gly	Arg	Pro	Arg	Leu	Lys	Thr	Met	Lys		
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 gatcgggccc tgggtctgta ggctacatcc tgatacctat aagttcaccc ccaccccaca 2624  
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 Ile Phe Ser Tyr Glu Arg Leu Ser Leu Lys Arg Ala Leu Trp Ala Leu  
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 Cys Phe Leu Gly Ser Leu Ala Val Leu Leu Cys Val Cys Thr Glu Arg  
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Glu	Phe	Arg	Phe	Ser	Gln	Val	Ser	Lys	Asn	Asp	Leu	Tyr	His	Ala	Gly
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Arg	Ser	Phe	Lys	Pro	Lys	Pro	Phe	Asn	Met	Arg	Glu	Phe	Tyr	Asp	Arg
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Ala	Gly	His	Asp	Ile	Arg	Asp	Met	Leu	Leu	Ser	Cys	His	Phe	Arg	Gly
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Glu	Val	Cys	Ser	Ala	Glu	Asp	Phe	Lys	Val	Val	Phe	Thr	Arg	Tyr	Gly
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Lys	Cys	Tyr	Thr	Phe	Asn	Ser	Gly	Arg	Asp	Gly	Arg	Pro	Arg	Leu	Lys
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Thr	Met	Lys	Asp	Gly	Thr	Gly	Asn	Gly	Leu	Glu	Ile	Met	Leu	Asp	Ile
	210					215					220				
Gln	Gln	Asp	Glu	Tyr	Leu	Pro	Val	Trp	Gly	Glu	Thr	Asp	Glu	Thr	Ser
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Phe	Glu	Ala	Gly	Ile	Lys	Val	Gln	Ile	His	Ser	Gln	Asp	Glu	Pro	Pro
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Phe	Ile	Asp	Gln	Leu	Gly	Phe	Gly	Val	Ala	Pro	Gly	Phe	Gln	Thr	Phe
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Val	Ala	Cys	Gln	Glu	Gln	Arg	Leu	Ile	Tyr	Leu	Pro	Pro	Pro	Trp	Gly
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Thr	Cys	Lys	Ala	Val	Thr	Met	Asp	Ser	Asp	Leu	Asp	Phe	Phe	Asp	Ser
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Tyr	Ser	Ile	Thr	Ala	Cys	Arg	Ile	Asp	Cys	Glu	Thr	Arg	Tyr	Leu	Val
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Glu	Asn	Cys	Asn	Cys	Arg	Met	Val	His	Met	Pro	Gly	Asp	Ala	Pro	Tyr
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Cys	Thr	Pro	Glu	Gln	Tyr	Lys	Glu	Cys	Ala	Asp	Pro	Ala	Leu	Asp	Phe
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Leu	Val	Glu	Lys	Asp	Gln	Glu	Tyr	Cys	Val	Cys	Glu	Met	Pro	Cys	Asn
		355					360					365			
Leu	Thr	Arg	Tyr	Gly	Lys	Glu	Leu	Ser	Met	Val	Lys	Ile	Pro	Ser	Lys
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Ala	Ser	Ala	Lys	Tyr	Leu	Ala	Lys	Lys	Phe	Asn	Lys	Ser	Glu	Gln	Tyr
385					390					395					400
Ile	Gly	Glu	Asn	Ile	Leu	Val	Leu	Asp	Ile	Phe	Phe	Glu	Val	Leu	Asn
				405					410					415	
Tyr	Glu	Thr	Ile	Glu	Gln	Lys	Lys	Ala	Tyr	Glu	Ile	Ala	Gly	Leu	Leu
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Gly	Glu	Leu	Leu	Met	Thr	Pro	Val	Pro	Phe	Ser	Cys	His	Gly	His	Gly
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Val	Ala	Pro	Tyr	His	Pro	Lys	Ala	Gly	Cys	Ser	Leu	Leu	Ser	His	Glu
	450					455					460				
Gly	Pro	Pro	Pro	Gln	Arg	Pro	Phe	Pro	Lys	Pro	Cys	Cys	Leu	Gly	Asp
465					470					475					480
Ile	Gly	Gly	Gln	Met	Gly	Leu	Phe	Ile	Gly	Ala	Ser	Ile	Leu	Thr	Val
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Leu	Glu	Leu	Phe	Asp	Tyr	Ala	Tyr	Glu	Val	Ile	Lys	His	Lys	Leu	Cys
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Arg	Arg	Gly	Lys	Cys	Gln	Lys	Glu	Ala	Lys	Arg	Ser	Ser	Ala	Asp	Lys
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Ser	Leu	Arg	Gly	His	Pro	Ala	Gly	Met	Thr	Tyr	Ala	Ala	Asn	Ile	Leu





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ccc ccg ctg gat gta ctg gtg gag cag ggg cta ttg gat aag cct gtc Pro Pro Leu Asp Val Leu Val Glu Gln Gly Leu Leu Asp Lys Pro Val 205 210 215			678
ttc tcc ttt tac ttc aac agg gac cct gaa gtg gct gat gga gga gag Phe Ser Phe Tyr Phe Asn Arg Asp Pro Glu Val Ala Asp Gly Gly Glu 220 225 230			726
ctg gtc ctg ggg ggc tca gac ccg gca cac tac atc cca ccc ctc acc Leu Val Leu Gly Gly Ser Asp Pro Ala His Tyr Ile Pro Pro Leu Thr 235 240 245			774
ttc gtg cca gtc aca gtc ccc gcc tac tgg cag atc cac atg gag cgt Phe Val Pro Val Thr Val Pro Ala Tyr Trp Gln Ile His Met Glu Arg 250 255 260			822
gtg aag gtg ggc tca cgg ctg act ctc tgt gcc cag ggc tgt gct gcc Val Lys Val Gly Ser Arg Leu Thr Leu Cys Ala Gln Gly Cys Ala Ala 265 270 275 280			870
atc ctg gat aca ggc aca cct gtc atc gta gga ccc act gag gag atc Ile Leu Asp Thr Gly Thr Pro Val Ile Val Gly Pro Thr Glu Glu Ile 285 290 295			918
cgg gcc ctg cat gca gcc att ggg gga atc ccc ttg ctg gct ggg gag Arg Ala Leu His Ala Ala Ile Gly Gly Ile Pro Leu Leu Ala Gly Glu 300 305 310			966
tac atc atc cgg tgc tca gaa atc cca aag ctc ccc gca gtc tca ctc Tyr Ile Ile Arg Cys Ser Glu Ile Pro Lys Leu Pro Ala Val Ser Leu 315 320 325			1014
ctc att ggg ggg gtc tgg ttt aat ctc acg gcc cag gat tac gtc atc Leu Ile Gly Gly Val Trp Phe Asn Leu Thr Ala Gln Asp Tyr Val Ile 330 335 340			1062
cag ttt gct cag ggt gac gtc cgc ctc tgc ttg tcc ggc ttc cgg gcc Gln Phe Ala Gln Gly Asp Val Arg Leu Cys Leu Ser Gly Phe Arg Ala 345 350 355 360			1110
ttg gac atc gct tcg cct cca gta cct gtg tgg atc ctc ggc gac gtt Leu Asp Ile Ala Ser Pro Pro Val Pro Val Trp Ile Leu Gly Asp Val 365 370 375			1158
ttc ttg ggg gcg tat gtg acc gtc ttc gac cgc ggg gac atg aag agc Phe Leu Gly Ala Tyr Val Thr Val Phe Asp Arg Gly Asp Met Lys Ser 380 385 390			1206
ggc gca cga gtg gga ctg gcg cgc gct cgc cct cgc gga gcg gac ctg Gly Ala Arg Val Gly Leu Ala Arg Ala Arg Pro Arg Gly Ala Asp Leu 395 400 405			1254
gga agg cgc gag acc gcg cag gcg cag tac cgc ggg tgc cgc cca ggt Gly Arg Arg Glu Thr Ala Gln Ala Gln Tyr Arg Gly Cys Arg Pro Gly 410 415 420			1302

gat gcg cat gcg cac cgg gta gca gag cta gcg cta ctc agt aaa aat 1350  
 Asp Ala His Ala His Arg Val Ala Glu Leu Ala Leu Leu Ser Lys Asn  
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cca ata ttt cca ttg aaa aaa aa 1373  
 Pro Ile Phe Pro Leu Lys Lys  
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 Gln Val His Pro Gly Arg Arg Thr Leu Asn Leu Leu Arg Gly Trp Gly  
 35 40 45  
 Lys Pro Ala Glu Leu Pro Lys Leu Gly Ala Pro Ser Pro Gly Asp Lys  
 50 55 60  
 Pro Ala Ser Val Pro Leu Ser Lys Phe Leu Asp Ala Gln Tyr Phe Gly  
 65 70 75 80  
 Glu Ile Gly Leu Gly Thr Pro Pro Gln Asn Phe Thr Val Ala Phe Asp  
 85 90 95  
 Thr Gly Ser Ser Asn Leu Trp Val Pro Ser Arg Arg Cys His Phe Phe  
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 Ser Val Pro Cys Trp Phe His His Arg Phe Asn Pro Asn Ala Ser Ser  
 115 120 125  
 Ser Phe Lys Pro Ser Gly Thr Lys Phe Ala Ile Gln Tyr Gly Thr Gly  
 130 135 140  
 Arg Val Asp Gly Ile Leu Ser Glu Asp Lys Leu Thr Ile Gly Gly Ile  
 145 150 155 160  
 Lys Gly Ala Ser Val Ile Phe Gly Glu Ala Leu Trp Glu Ser Ser Leu  
 165 170 175  
 Val Phe Thr Val Ser Arg Pro Asp Gly Ile Leu Gly Leu Gly Phe Pro  
 180 185 190  
 Ile Leu Ser Val Glu Gly Val Arg Pro Pro Leu Asp Val Leu Val Glu  
 195 200 205  
 Gln Gly Leu Leu Asp Lys Pro Val Phe Ser Phe Tyr Phe Asn Arg Asp  
 210 215 220  
 Pro Glu Val Ala Asp Gly Gly Glu Leu Val Leu Gly Gly Ser Asp Pro  
 225 230 235 240  
 Ala His Tyr Ile Pro Pro Leu Thr Phe Val Pro Val Thr Val Pro Ala  
 245 250 255  
 Tyr Trp Gln Ile His Met Glu Arg Val Lys Val Gly Ser Arg Leu Thr  
 260 265 270  
 Leu Cys Ala Gln Gly Cys Ala Ala Ile Leu Asp Thr Gly Thr Pro Val  
 275 280 285  
 Ile Val Gly Pro Thr Glu Glu Ile Arg Ala Leu His Ala Ala Ile Gly  
 290 295 300  
 Gly Ile Pro Leu Leu Ala Gly Glu Tyr Ile Ile Arg Cys Ser Glu Ile  
 305 310 315 320



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Thr Leu Arg Tyr Cys Ala Gly Trp Ala Asp Lys Ile Gln Gly Arg Thr	
130 135 140	
ata cca att gat gga aat ttt ttt aca tat aca aga cat gaa cct att	480
Ile Pro Ile Asp Gly Asn Phe Phe Thr Tyr Thr Arg His Glu Pro Ile	
145 150 155 160	
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Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Leu Val Met Leu	
165 170 175	
att tgg aag ata ggg cct gca ctg agc tgt gga aac aca gtg gtt gtc	576
Ile Trp Lys Ile Gly Pro Ala Leu Ser Cys Gly Asn Thr Val Val Val	
180 185 190	
aaa cca gca gag caa act cct ctc act gct ctc cac gtg gca tct tta	624
Lys Pro Ala Glu Gln Thr Pro Leu Thr Ala Leu His Val Ala Ser Leu	
195 200 205	
ata aaa gag gca ggg ttt cct cct gga gta gtg aat att gtt cct ggt	672
Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly	
210 215 220	
tat ggg cct aca gca ggg gca gcc att tct tct cac atg gat ata gac	720
Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ser Ser His Met Asp Ile Asp	
225 230 235 240	
aaa gta gcc ttc aca gga tca aca gag gtt ggc aag ttg atc aaa gaa	768
Lys Val Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Leu Ile Lys Glu	
245 250 255	
gct gcc ggg aaa agc aat ctg aag agg gtg acc ctg gag ctt gga gga	816
Ala Ala Gly Lys Ser Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly	
260 265 270	
aag agc cct tgc att gtg tta gct gat gcc gac ttg gac aat gct gtt	864
Lys Ser Pro Cys Ile Val Leu Ala Asp Ala Asp Leu Asp Asn Ala Val	
275 280 285	
gaa ttt gca cac cat ggg gta ttc tac cac cag ggc cag tgt tgt ata	912
Glu Phe Ala His His Gly Val Phe Tyr His Gln Gly Gln Cys Cys Ile	
290 295 300	
gcc gca tcc agg att ttt gtg gaa gaa tca att tat gat gag ttt gtt	960
Ala Ala Ser Arg Ile Phe Val Glu Glu Ser Ile Tyr Asp Glu Phe Val	
305 310 315 320	
cga agg agt gtt gag cgg gct aag aag tat atc ctt gga aat cct ctg	1008
Arg Arg Ser Val Glu Arg Ala Lys Lys Tyr Ile Leu Gly Asn Pro Leu	
325 330 335	
acc cca gga gtc act caa ggc cct cag att gac aag gaa caa tat gat	1056
Thr Pro Gly Val Thr Gln Gly Pro Gln Ile Asp Lys Glu Gln Tyr Asp	
340 345 350	
aaa ata ctt gac ctc att gag agt ggg aag aaa gaa ggg gcc aaa ctg	1104
Lys Ile Leu Asp Leu Ile Glu Ser Gly Lys Lys Glu Gly Ala Lys Leu	
355 360 365	
gaa tgt gga gga ggc ccg tgg ggg aat aaa ggc tac ttt gtc cag ccc	1152

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Ile	Phe	Gly	Pro	Val	Gln	Gln	Ile	Met	Lys	Phe	Lys	Ser	Leu	Asp	Asp		
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gtg	atc	aaa	aga	gca	aac	aat	act	ttc	tat	ggc	tta	tca	gca	gga	gtg	1296	
Val	Ile	Lys	Arg	Ala	Asn	Asn	Thr	Phe	Tyr	Gly	Leu	Ser	Ala	Gly	Val		
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ttt	acc	aaa	gac	att	gat	aaa	gcc	ata	aca	atc	tcc	tct	gct	ctg	cag	1344	
Phe	Thr	Lys	Asp	Ile	Asp	Lys	Ala	Ile	Thr	Ile	Ser	Ser	Ala	Leu	Gln		
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gca	gga	aca	gtg	tgg	gtg	aat	tgc	tat	ggc	gtg	gta	agt	gcc	cag	tgc	1392	
Ala	Gly	Thr	Val	Trp	Val	Asn	Cys	Tyr	Gly	Val	Val	Ser	Ala	Gln	Cys		
	450					455					460						
ccc	ttt	ggc	gga	ttc	aag	atg	tct	gga	aat	gga	aga	gaa	ctg	gga	gag	1440	
Pro	Phe	Gly	Gly	Phe	Lys	Met	Ser	Gly	Asn	Gly	Arg	Glu	Leu	Gly	Glu		
465					470					475				480			
tac	ggt	ttc	cat	gaa	tat	aca	gag	gtc	aaa	aca	gtc	aca	gtg	aaa	atc	1488	
Tyr	Gly	Phe	His	Glu	Tyr	Thr	Glu	Val	Lys	Thr	Val	Thr	Val	Lys	Ile		
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Ser	Gln	Lys	Asn	Ser	*												
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<400> 22

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Val	Ser	Gly	Lys	Lys	Phe	Pro	Val	Phe	Asn	Pro	Ala	Thr	Glu	Glu	Glu		
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Leu	Cys	Gln	Val	Glu	Glu	Gly	Asp	Lys	Glu	Asp	Val	Asp	Lys	Ala	Val		
	50					55				60							
Lys	Ala	Ala	Arg	Gln	Ala	Phe	Gln	Ile	Gly	Ser	Pro	Trp	Arg	Thr	Met		
65				70						75					80		
Asp	Ala	Ser	Glu	Arg	Gly	Arg	Leu	Leu	Tyr	Lys	Leu	Ala	Asp	Leu	Ile		
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Glu	Arg	Asp	Arg	Leu	Leu	Leu	Ala	Thr	Met	Glu	Ser	Met	Asn	Gly	Gly		
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Lys	Leu	Tyr	Ser	Asn	Ala	Tyr	Leu	Ser	Asp	Leu	Ala	Gly	Cys	Ile	Lys		
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Thr	Leu	Arg	Tyr	Cys	Ala	Gly	Trp	Ala	Asp	Lys	Ile	Gln	Gly	Arg	Thr		
	130					135					140						
Ile	Pro	Ile	Asp	Gly	Asn	Phe	Phe	Thr	Tyr	Thr	Arg	His	Glu	Pro	Ile		

145					150					155				160
Gly	Val	Cys	Gly	Gln	Ile	Ile	Pro	Trp	Asn	Phe	Pro	Leu	Val	Met Leu
				165					170					175
Ile	Trp	Lys	Ile	Gly	Pro	Ala	Leu	Ser	Cys	Gly	Asn	Thr	Val	Val Val
			180					185					190	
Lys	Pro	Ala	Glu	Gln	Thr	Pro	Leu	Thr	Ala	Leu	His	Val	Ala	Ser Leu
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Ile	Lys	Glu	Ala	Gly	Phe	Pro	Pro	Gly	Val	Val	Asn	Ile	Val	Pro Gly
	210					215					220			
Tyr	Gly	Pro	Thr	Ala	Gly	Ala	Ala	Ile	Ser	Ser	His	Met	Asp	Ile Asp
225					230					235				240
Lys	Val	Ala	Phe	Thr	Gly	Ser	Thr	Glu	Val	Gly	Lys	Leu	Ile	Lys Glu
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Ala	Ala	Gly	Lys	Ser	Asn	Leu	Lys	Arg	Val	Thr	Leu	Glu	Leu	Gly Gly
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Lys	Ser	Pro	Cys	Ile	Val	Leu	Ala	Asp	Ala	Asp	Leu	Asp	Asn	Ala Val
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Glu	Phe	Ala	His	His	Gly	Val	Phe	Tyr	His	Gln	Gly	Gln	Cys	Cys Ile
	290				295					300				
Ala	Ala	Ser	Arg	Ile	Phe	Val	Glu	Glu	Ser	Ile	Tyr	Asp	Glu	Phe Val
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Arg	Arg	Ser	Val	Glu	Arg	Ala	Lys	Lys	Tyr	Ile	Leu	Gly	Asn	Pro Leu
			325						330					335
Thr	Pro	Gly	Val	Thr	Gln	Gly	Pro	Gln	Ile	Asp	Lys	Glu	Gln	Tyr Asp
		340					345						350	
Lys	Ile	Leu	Asp	Leu	Ile	Glu	Ser	Gly	Lys	Lys	Glu	Gly	Ala	Lys Leu
	355					360					365			
Glu	Cys	Gly	Gly	Gly	Pro	Trp	Gly	Asn	Lys	Gly	Tyr	Phe	Val	Gln Pro
	370				375					380				
Thr	Val	Phe	Ser	Asn	Val	Thr	Asp	Glu	Met	Arg	Ile	Ala	Lys	Glu Glu
385				390					395					400
Ile	Phe	Gly	Pro	Val	Gln	Gln	Ile	Met	Lys	Phe	Lys	Ser	Leu	Asp Asp
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Val	Ile	Lys	Arg	Ala	Asn	Asn	Thr	Phe	Tyr	Gly	Leu	Ser	Ala	Gly Val
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Phe	Thr	Lys	Asp	Ile	Asp	Lys	Ala	Ile	Thr	Ile	Ser	Ser	Ala	Leu Gln
	435					440					445			
Ala	Gly	Thr	Val	Trp	Val	Asn	Cys	Tyr	Gly	Val	Val	Ser	Ala	Gln Cys
	450				455					460				
Pro	Phe	Gly	Gly	Phe	Lys	Met	Ser	Gly	Asn	Gly	Arg	Glu	Leu	Gly Glu
465				470					475					480
Tyr	Gly	Phe	His	Glu	Tyr	Thr	Glu	Val	Lys	Thr	Val	Thr	Val	Lys Ile
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Ser	Gln	Lys	Asn	Ser										
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 <213> Homo sapiens

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Glu	Leu	Glu	Thr	Asn	Gly	Arg	Asp	His	His	Thr	Ala	Asp	Leu	Cys	Arg	
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Phe	Glu	Gly	Arg	Asn	Tyr	Gln	Ala	Ser	Val	Asp	Ser	Leu	Thr	Phe	Ser	
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Val	Val	Thr	Gly	Pro	Ala	Pro	Ser	Gln	Glu	Ala	Gly	Thr	Lys	Ala	Arg	
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Phe	Pro	Leu	Arg	Asp	Ala	Val	Glu	Glu	Gly	Asp	Trp	Thr	Ala	Thr	Val	
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Val	Asp	Gln	Gln	Asp	Cys	Thr	Leu	Ser	Leu	Gln	Leu	Thr	Thr	Pro	Ala	
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Asn	Ala	Pro	Ile	Gly	Leu	Tyr	Arg	Leu	Ser	Leu	Glu	Ala	Ser	Thr	Gly	
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Tyr	Gln	Gly	Ser	Ser	Phe	Val	Leu	Gly	His	Phe	Ile	Leu	Leu	Phe	Asn	
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Ala	Trp	Cys	Pro	Ala	Asp	Ala	Val	Tyr	Leu	Asp	Ser	Glu	Glu	Glu	Arg	
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Gln	Glu	Tyr	Val	Leu	Thr	Gln	Gln	Gly	Phe	Ile	Tyr	Gln	Gly	Ser	Ala	
			160			165			170							
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Lys	Phe	Ile	Lys	Asn	Ile	Pro	Trp	Asn	Phe	Gly	Gln	Phe	Gln	Asp	Gly	
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Ile	Leu	Asp	Ile	Cys	Leu	Ile	Leu	Leu	Asp	Val	Asn	Pro	Lys	Phe	Leu	
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Lys	Asn	Ala	Gly	Arg	Asp	Cys	Ser	Arg	Arg	Ser	Ser	Pro	Val	Tyr	Val	
			205			210			215			220				
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Gly	Arg	Val	Gly	Ser	Gly	Met	Val	Asn	Cys	Asn	Asp	Asp	Gln	Gly	Val	
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Leu	Leu	Gly	Arg	Trp	Asp	Asn	Asn	Tyr	Gly	Asp	Gly	Val	Ser	Pro	Met	
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Cys Gln Arg Val Lys Tyr Gly Gln Cys Trp Val Phe Ala Ala Val Ala	
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Cys Thr Val Leu Arg Cys Leu Gly Ile Pro Thr Arg Val Val Thr Asn	
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Tyr Asn Ser Ala His Asp Gln Asn Ser Asn Leu Leu Ile Glu Tyr Phe	
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Arg Asn Glu Phe Gly Glu Ile Gln Gly Asp Lys Ser Glu Met Ile Trp	
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Pro Gly Tyr Glu Gly Trp Gln Ala Leu Asp Pro Thr Pro Gln Glu Lys	
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Ser Glu Gly Thr Tyr Cys Cys Gly Pro Val Pro Val Arg Ala Ile Lys	
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gag ggc gac ctg agc acc aag tac gat gcg ccc ttt gtc ttt gcg gag	1323
Glu Gly Asp Leu Ser Thr Lys Tyr Asp Ala Pro Phe Val Phe Ala Glu	
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gtc aat gcc gac gtg gta gac tgg atc cag cag gac gat ggg tct gtg	1371
Val Asn Ala Asp Val Val Asp Trp Ile Gln Gln Asp Asp Gly Ser Val	
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His Lys Ser Ile Asn Arg Ser Leu Ile Val Gly Leu Lys Ile Ser Thr	
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Lys Ser Val Gly Arg Asp Glu Arg Glu Asp Ile Thr His Thr Tyr Lys	
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Tyr Pro Glu Gly Ser Ser Glu Glu Arg Glu Ala Phe Thr Arg Ala Asn	
445 450 455 460	
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His Leu Asn Lys Leu Ala Glu Lys Glu Glu Thr Gly Met Ala Met Arg	
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Ile Arg Val Gly Gln Ser Met Asn Met Gly Ser Asp Phe Asp Val Phe	
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Ala His Ile Thr Asn Asn Thr Ala Glu Glu Tyr Val Cys Arg Leu Leu	
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ctc tgt gcc cgc acc gtc agc tac aat ggg atc ttg ggg ccc gag tgt	1707
Leu Cys Ala Arg Thr Val Ser Tyr Asn Gly Ile Leu Gly Pro Glu Cys	
510 515 520	
ggc acc aag tac ctg ctc aac cta acc ctg gag cct ttc tct gag aag	1755
Gly Thr Lys Tyr Leu Leu Asn Leu Thr Leu Pro Phe Ser Glu Lys	
525 530 535 540	
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Ser Val Pro Leu Cys Ile Leu Tyr Glu Lys Tyr Arg Asp Cys Leu Thr	
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Glu Ser Asn Leu Ile Lys Val Arg Ala Leu Leu Val Glu Pro Val Ile	
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Asn Ser Tyr Leu Leu Ala Glu Arg Asp Leu Tyr Leu Glu Asn Pro Glu	
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Ile Lys Ile Arg Ile Leu Gly Glu Pro Lys Gln Lys Arg Lys Leu Val	
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gct gag gtg tcc ctg cag aac ccg ctc cct gtg gcc ctg gaa ggc tgc	1995
Ala Glu Val Ser Leu Gln Asn Pro Leu Pro Val Ala Leu Glu Gly Cys	
605 610 615 620	
acc ttc act gtg gag ggg gcc ggc ctg act gag gag cag aag acg gtg	2043
Thr Phe Thr Val Glu Gly Ala Gly Leu Thr Glu Glu Gln Lys Thr Val	
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Glu Ile Pro Asp Pro Val Glu Ala Gly Glu Glu Val Lys Val Arg Met	
640 645 650	
gac ctc gtg ccg ctc cac atg ggc ctc cac aag ctg gtg gtg aac ttc	2139
Asp Leu Val Pro Leu His Met Gly Leu His Lys Leu Val Val Asn Phe	
655 660 665	
gag agc gac aag ctg aag gct gtg aag ggc ttc cgg aat gtc atc att	2187
Glu Ser Asp Lys Leu Lys Ala Val Lys Gly Phe Arg Asn Val Ile Ile	
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Gly Pro Ala *	
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<210> 24

<211> 687

<212> PRT

<213> Homo sapiens

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Val Arg Arg Gly Gln Pro Phe Trp Leu Thr Leu His Phe Glu Gly Arg
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Asn Tyr Gln Ala Ser Val Asp Ser Leu Thr Phe Ser Val Val Thr Gly
 50          55          60
Pro Ala Pro Ser Gln Glu Ala Gly Thr Lys Ala Arg Phe Pro Leu Arg
 65          70          75          80
Asp Ala Val Glu Glu Gly Asp Trp Thr Ala Thr Val Val Asp Gln Gln
 85          90          95
Asp Cys Thr Leu Ser Leu Gln Leu Thr Thr Pro Ala Asn Ala Pro Ile
100          105          110
Gly Leu Tyr Arg Leu Ser Leu Glu Ala Ser Thr Gly Tyr Gln Gly Ser
115          120          125
Ser Phe Val Leu Gly His Phe Ile Leu Leu Phe Asn Ala Trp Cys Pro
130          135          140
Ala Asp Ala Val Tyr Leu Asp Ser Glu Glu Glu Arg Gln Glu Tyr Val
145          150          155          160
Leu Thr Gln Gln Gly Phe Ile Tyr Gln Gly Ser Ala Lys Phe Ile Lys
165          170          175
Asn Ile Pro Trp Asn Phe Gly Gln Phe Gln Asp Gly Ile Leu Asp Ile
180          185          190
Cys Leu Ile Leu Leu Asp Val Asn Pro Lys Phe Leu Lys Asn Ala Gly
195          200          205
Arg Asp Cys Ser Arg Arg Ser Ser Pro Val Tyr Val Gly Arg Val Gly
210          215          220
Ser Gly Met Val Asn Cys Asn Asp Asp Gln Gly Val Leu Leu Gly Arg
225          230          235          240
Trp Asp Asn Asn Tyr Gly Asp Gly Val Ser Pro Met Ser Trp Ile Gly
245          250          255
Ser Val Asp Ile Leu Arg Arg Trp Lys Asn His Gly Cys Gln Arg Val
260          265          270
Lys Tyr Gly Gln Cys Trp Val Phe Ala Ala Val Ala Cys Thr Val Leu
275          280          285
Arg Cys Leu Gly Ile Pro Thr Arg Val Val Thr Asn Tyr Asn Ser Ala
290          295          300
His Asp Gln Asn Ser Asn Leu Leu Ile Glu Tyr Phe Arg Asn Glu Phe
305          310          315          320
Gly Glu Ile Gln Gly Asp Lys Ser Glu Met Ile Trp Asn Phe His Cys
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Trp Val Glu Ser Trp Met Thr Arg Pro Asp Leu Gln Pro Gly Tyr Glu
340          345          350
Gly Trp Gln Ala Leu Asp Pro Thr Pro Gln Glu Lys Ser Glu Gly Thr

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Val	Val	Asp	Trp	Ile	Gln	Gln	Asp	Asp	Gly	Ser	Val	His	Lys	Ser	Ile
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Arg	Asp	Glu	Arg	Glu	Asp	Ile	Thr	His	Thr	Tyr	Lys	Tyr	Pro	Glu	Gly
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Ser	Ser	Glu	Glu	Arg	Glu	Ala	Phe	Thr	Arg	Ala	Asn	His	Leu	Asn	Lys
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Leu	Ala	Glu	Lys	Glu	Glu	Thr	Gly	Met	Ala	Met	Arg	Ile	Arg	Val	Gly
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Gln	Ser	Met	Asn	Met	Gly	Ser	Asp	Phe	Asp	Val	Phe	Ala	His	Ile	Thr
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Thr	Val	Ser	Tyr	Asn	Gly	Ile	Leu	Gly	Pro	Glu	Cys	Gly	Thr	Lys	Tyr
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Cys	Ile	Leu	Tyr	Glu	Lys	Tyr	Arg	Asp	Cys	Leu	Thr	Glu	Ser	Asn	Leu
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Leu	Ala	Glu	Arg	Asp	Leu	Tyr	Leu	Glu	Asn	Pro	Glu	Ile	Lys	Ile	Arg
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Ile	Leu	Gly	Glu	Pro	Lys	Gln	Lys	Arg	Lys	Leu	Val	Ala	Glu	Val	Ser
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Leu	Gln	Asn	Pro	Leu	Pro	Val	Ala	Leu	Glu	Gly	Cys	Thr	Phe	Thr	Val
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Glu	Gly	Ala	Gly	Leu	Thr	Glu	Glu	Gln	Lys	Thr	Val	Glu	Ile	Pro	Asp
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Pro	Val	Glu	Ala	Gly	Glu	Glu	Val	Lys	Val	Arg	Met	Asp	Leu	Val	Pro
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 His Trp Phe Val Phe Ser Val Tyr Leu Leu Thr Phe Leu Val Gly Leu  
 15 20 25

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Pro Leu Asn Leu Leu Ala Leu Val Val Phe Val Gly Lys Leu Gln Arg	
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cgc ccg gtg gcc gtg gac gtg ctc ctg ctc aac ctg acc gcc tcg gac	193
Arg Pro Val Ala Val Asp Val Leu Leu Leu Asn Leu Thr Ala Ser Asp	
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ctg ctc ctg ctg ctg ttc ctg cct ttc cgc atg gtg gag gca gcc aat	241
Leu Leu Leu Leu Leu Phe Leu Pro Phe Arg Met Val Glu Ala Ala Asn	
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ggc atg cac tgg ccc ctg ccc ttc atc ctc tgc cca ctc tct gga ttc	289
Gly Met His Trp Pro Leu Pro Phe Ile Leu Cys Pro Leu Ser Gly Phe	
80 85 90	
atc ttc ttc acc acc atc tat ctc acc gcc ctc ttc ctg gca gct gtg	337
Ile Phe Phe Thr Thr Ile Tyr Leu Thr Ala Leu Phe Leu Ala Ala Val	
95 100 105	
agc att gaa cgc ttc ctg agt gtg gcc cac cca ctg tgg tac aag acc	385
Ser Ile Glu Arg Phe Leu Ser Val Ala His Pro Leu Trp Tyr Lys Thr	
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cgg ccg agg ctg ggg cag gca ggt ctg gtg agt gtg gcc tgc tgg ctg	433
Arg Pro Arg Leu Gly Gln Ala Gly Leu Val Ser Val Ala Cys Trp Leu	
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Leu Ala Ser Ala His Cys Ser Val Val Tyr Val Ile Glu Phe Ser Gly	
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gac atc tcc cac agc cag ggc acc aat ggg acc tgc tac ctg gag ttc	529
Asp Ile Ser His Ser Gln Gly Thr Asn Gly Thr Cys Tyr Leu Glu Phe	
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cgg aag gac cag cta gcc atc ctc ctg ccc gtg cgg ctg gag atg gct	577
Arg Lys Asp Gln Leu Ala Ile Leu Leu Pro Val Arg Leu Glu Met Ala	
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Val Val Leu Phe Val Val Pro Leu Ile Ile Thr Ser Tyr Cys Tyr Ser	
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Arg Leu Val Trp Ile Leu Gly Arg Gly Gly Ser His Arg Arg Gln Arg	
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Phe Gly Pro Tyr Asn Val Ser His Val Val Gly Tyr Ile Cys Gly Glu	
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Asp	Phe	His	Glu	Leu	Leu	Arg	Arg	Leu	Cys	Gly	Leu	Trp	Gly	Gln	Trp		
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Gln	Gln	Glu	Ser	Ser	Met	Glu	Leu	Lys	Glu	Gln	Lys	Gly	Gly	Glu	Glu		
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Gln	Arg	Ala	Asp	Arg	Pro	Ala	Glu	Arg	Lys	Thr	Ser	Glu	His	Ser	Gln		
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Trp	Pro	Leu	Pro	Phe	Ile	Leu	Cys	Pro	Leu	Ser	Gly	Phe	Ile	Phe	Phe		
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His	Ser	Gln	Gly	Thr	Asn	Gly	Thr	Cys	Tyr	Leu	Glu	Phe	Arg	Lys	Asp		
				165					170					175			
Gln	Leu	Ala	Ile	Leu	Leu	Pro	Val	Arg	Leu	Glu	Met	Ala	Val	Val	Leu		
			180					185					190				
Phe	Val	Val	Pro	Leu	Ile	Ile	Thr	Ser	Tyr	Cys	Tyr	Ser	Arg	Leu	Val		
		195					200					205					
Trp	Ile	Leu	Gly	Arg	Gly	Gly	Ser	His	Arg	Arg	Gln	Arg	Arg	Val	Ala		
	210					215					220						
Gly	Leu	Leu	Ala	Ala	Thr	Leu	Leu	Asn	Phe	Leu	Val	Cys	Phe	Gly	Pro		
225					230					235					240		
Tyr	Asn	Val	Ser	His	Val	Val	Gly	Tyr	Ile	Cys	Gly	Glu	Ser	Pro	Ala		
				245					250					255			
Trp	Arg	Ile	Tyr	Val	Thr	Leu	Leu	Ser	Thr	Leu	Asn	Ser	Cys	Val	Asp		
			260					265						270			

Pro Phe Val Tyr Tyr Phe Ser Ser Ser Gly Phe Gln Ala Asp Phe His  
275 280 285  
Glu Leu Leu Arg Arg Leu Cys Gly Leu Trp Gly Gln Trp Gln Gln Glu  
290 295 300  
Ser Ser Met Glu Leu Lys Glu Gln Lys Gly Gly Glu Glu Gln Arg Ala  
305 310 315 320  
Asp Arg Pro Ala Glu Arg Lys Thr Ser Glu His Ser Gln Gly Cys Gly  
325 330 335  
Thr Gly Gly Gln Val Ala Cys Ala Glu Ser  
340 345

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<212> DNA  
<213> Homo sapiens

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<222> (11)...(1003)

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tac atc atc atc ttc ctc act ggc ctc cct gcc aac ctc ctg gcc ctg 97  
Tyr Ile Ile Ile Phe Leu Thr Gly Leu Pro Ala Asn Leu Leu Ala Leu  
15 20 25  
  
cgg gcc ttt gtg ggg cgg atc cgc cag ccc cag cct gca cct gtg cac 145  
Arg Ala Phe Val Gly Arg Ile Arg Gln Pro Gln Pro Ala Pro Val His  
30 35 40 45  
  
atc ctc ctg ctg agc ctg acg ctg gcc gac ctc ctc ctg ctg ctg ctg 193  
Ile Leu Leu Leu Ser Leu Thr Leu Ala Asp Leu Leu Leu Leu Leu Leu  
50 55 60  
  
ctg ccc ttc aag atc atc gag gct gcg tcg aac ttc cgc tgg tac ctg 241  
Leu Pro Phe Lys Ile Ile Glu Ala Ala Ser Asn Phe Arg Trp Tyr Leu  
65 70 75  
  
ccc aag gtc gtc tgc gcc ctc acg agt ttt ggc ttc tac agc agc atc 289  
Pro Lys Val Val Cys Ala Leu Thr Ser Phe Gly Phe Tyr Ser Ser Ile  
80 85 90  
  
tac tgc agc acg tgg ctc ctg gcg ggc atc agc atc gag cgc tac ctg 337  
Tyr Cys Ser Thr Trp Leu Leu Ala Gly Ile Ser Ile Glu Arg Tyr Leu  
95 100 105  
  
gga gtg gct ttc ccc gtg cag tac aag ctc tcc cgc cgg cct ctg tat 385  
Gly Val Ala Phe Pro Val Gln Tyr Lys Leu Ser Arg Arg Pro Leu Tyr  
110 115 120 125  
  
gga gtg att gca gct ctg gtg gcc tgg gtt atg tcc ttt ggt cac tgc 433  
Gly Val Ile Ala Ala Leu Val Ala Trp Val Met Ser Phe Gly His Cys  
130 135 140  
  
acc atc gtg atc atc gtt caa tac ttg aac acg act gag cag gtc aga 481  
Thr Ile Val Ile Ile Val Gln Tyr Leu Asn Thr Thr Glu Gln Val Arg  
145 150 155

agt ggc aat gaa att acc tgc tac gag aac ttc acc gat aac cag ttg	529
Ser Gly Asn Glu Ile Thr Cys Tyr Glu Asn Phe Thr Asp Asn Gln Leu	
160 165 170	
gac gtg gtg ctg ccc gtg cgg ctg gag ctg tgc ctg gtg ctc ttc ttc	577
Asp Val Val Leu Pro Val Arg Leu Glu Leu Cys Leu Val Leu Phe Phe	
175 180 185	
atc ccc atg gca gtc acc atc ttc tgc tac tgg cgt ttt gtg tgg atc	625
Ile Pro Met Ala Val Thr Ile Phe Cys Tyr Trp Arg Phe Val Trp Ile	
190 195 200 205	
atg ctc tcc cag ccc ctt gtg ggg gcc cag agg cgg cgc cga gcc gtg	673
Met Leu Ser Gln Pro Leu Val Gly Ala Gln Arg Arg Arg Arg Ala Val	
210 215 220	
ggg ctg gct gtg gtg acg ctg ctc aat ttc ctg gtg tgc ttc gga cct	721
Gly Leu Ala Val Val Thr Leu Leu Asn Phe Leu Val Cys Phe Gly Pro	
225 230 235	
tac aac gtg tcc cac ctg gtg ggg tat cac cag aga aaa agc ccc tgg	769
Tyr Asn Val Ser His Leu Val Gly Tyr His Gln Arg Lys Ser Pro Trp	
240 245 250	
tgg cgg tca ata gcc gtg gtg ttc agt tca ctc aac gcc agt ctg gac	817
Trp Arg Ser Ile Ala Val Val Phe Ser Ser Leu Asn Ala Ser Leu Asp	
255 260 265	
ccc ctg ctc ttc tat ttc tct tct tca gtg gtg cgc agg gca ttt ggg	865
Pro Leu Leu Phe Tyr Phe Ser Ser Ser Val Val Arg Arg Ala Phe Gly	
270 275 280 285	
aga ggg ctg cag gtg ctg cgg aat cag ggc tcc tcc ctg ttg gga cgc	913
Arg Gly Leu Gln Val Leu Arg Asn Gln Gly Ser Ser Leu Leu Gly Arg	
290 295 300	
aga ggc aaa gac aca gca gag ggg aca aat gag gac agg ggt gtg ggt	961
Arg Gly Lys Asp Thr Ala Glu Gly Thr Asn Glu Asp Arg Gly Val Gly	
305 310 315	
caa gga gaa ggg atg cca agt tgc gac ttc act aca gag tag	1003
Gln Gly Glu Gly Met Pro Ser Ser Asp Phe Thr Thr Glu *	
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20 25 30	
Val Gly Arg Ile Arg Gln Pro Gln Pro Ala Pro Val His Ile Leu Leu	
35 40 45	
Leu Ser Leu Thr Leu Ala Asp Leu Leu Leu Leu Leu Leu Leu Pro Phe	
50 55 60	

Lys	Ile	Ile	Glu	Ala	Ala	Ser	Asn	Phe	Arg	Trp	Tyr	Leu	Pro	Lys	Val
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Val	Cys	Ala	Leu	Thr	Ser	Phe	Gly	Phe	Tyr	Ser	Ser	Ile	Tyr	Cys	Ser
				85					90					95	
Thr	Trp	Leu	Leu	Ala	Gly	Ile	Ser	Ile	Glu	Arg	Tyr	Leu	Gly	Val	Ala
			100					105					110		
Phe	Pro	Val	Gln	Tyr	Lys	Leu	Ser	Arg	Arg	Pro	Leu	Tyr	Gly	Val	Ile
		115					120					125			
Ala	Ala	Leu	Val	Ala	Trp	Val	Met	Ser	Phe	Gly	His	Cys	Thr	Ile	Val
	130					135					140				
Ile	Ile	Val	Gln	Tyr	Leu	Asn	Thr	Thr	Glu	Gln	Val	Arg	Ser	Gly	Asn
145					150					155					160
Glu	Ile	Thr	Cys	Tyr	Glu	Asn	Phe	Thr	Asp	Asn	Gln	Leu	Asp	Val	Val
			165						170					175	
Leu	Pro	Val	Arg	Leu	Glu	Leu	Cys	Leu	Val	Leu	Phe	Phe	Ile	Pro	Met
		180						185					190		
Ala	Val	Thr	Ile	Phe	Cys	Tyr	Trp	Arg	Phe	Val	Trp	Ile	Met	Leu	Ser
		195					200					205			
Gln	Pro	Leu	Val	Gly	Ala	Gln	Arg	Arg	Arg	Arg	Ala	Val	Gly	Leu	Ala
	210					215					220				
Val	Val	Thr	Leu	Leu	Asn	Phe	Leu	Val	Cys	Phe	Gly	Pro	Tyr	Asn	Val
225					230					235					240
Ser	His	Leu	Val	Gly	Tyr	His	Gln	Arg	Lys	Ser	Pro	Trp	Trp	Arg	Ser
			245						250					255	
Ile	Ala	Val	Val	Phe	Ser	Ser	Leu	Asn	Ala	Ser	Leu	Asp	Pro	Leu	Leu
		260						265					270		
Phe	Tyr	Phe	Ser	Ser	Ser	Val	Val	Arg	Arg	Ala	Phe	Gly	Arg	Gly	Leu
		275					280					285			
Gln	Val	Leu	Arg	Asn	Gln	Gly	Ser	Ser	Leu	Leu	Gly	Arg	Arg	Gly	Lys
	290					295					300				
Asp	Thr	Ala	Glu	Gly	Thr	Asn	Glu	Asp	Arg	Gly	Val	Gly	Gln	Gly	Glu
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<220>  
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 Met Gly Gly Ala Val Val Asp Glu Gly Pro Thr Gly Val Lys Ala  
 1 5 10 15

cct gac ggc ggc tgg ggc tgg gcc gtg ctc ttc ggc tgt ttc gtc atc 155  
 Pro Asp Gly Gly Trp Gly Trp Ala Val Leu Phe Gly Cys Phe Val Ile  
 20 25 30

act ggc ttc tcc tac gcc ttc ccc aag gcc gtc agt gtc ttc ttc aag 203  
 Thr Gly Phe Ser Tyr Ala Phe Pro Lys Ala Val Ser Val Phe Phe Lys  
 35 40 45

gag ctc ata cag gag ttt ggg atc ggc tac agc gac aca gcc tgg atc 251  
 Glu Leu Ile Gln Glu Phe Gly Ile Gly Tyr Ser Asp Thr Ala Trp Ile



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65 70 75			
gtg tgc gtg aac cgc ttt ggc tgc cgg ccc gtc atg ctt gtg ggg ggt Val Cys Val Asn Arg Phe Gly Cys Arg Pro Val Met Leu Val Gly Gly	347		
80 85 90 95			
ctc ttt gcg tcg ctg ggc atg gtg gct gcg tcc ttt tgc cgg agc atc Leu Phe Ala Ser Leu Gly Met Val Ala Ala Ser Phe Cys Arg Ser Ile	395		
100 105 110			
atc cag gtc tac ctc acc act ggg gtc atc acg ggg ttg ggt ttg gca Ile Gln Val Tyr Leu Thr Thr Gly Val Ile Thr Gly Leu Gly Leu Ala	443		
115 120 125			
ctc aac ttc cag ccc tcg ctc atc atg ctg aac cgc tac ttc agc aag Leu Asn Phe Gln Pro Ser Leu Ile Met Leu Asn Arg Tyr Phe Ser Lys	491		
130 135 140			
cgg cgc ccc atg gcc aac ggg ctg gcg gca gca ggt agc cct gtc ttc Arg Arg Pro Met Ala Asn Gly Leu Ala Ala Ala Gly Ser Pro Val Phe	539		
145 150 155			
ctg tgt gcc ctg agc ccg ctg ggg cag ctg ctg cag gac cgc tac ggc Leu Cys Ala Leu Ser Pro Leu Gly Gln Leu Leu Gln Asp Arg Tyr Gly	587		
160 165 170 175			
tgg cgg ggc ggc ttc ctc atc ctg ggc ggc ctg ctg ctc aac tgc tgc Trp Arg Gly Gly Phe Leu Ile Leu Gly Gly Leu Leu Leu Asn Cys Cys	635		
180 185 190			
gtg tgt gcc gca ctc atg agg ccc ctg gtg gtc acg gcc cag ccg ggc Val Cys Ala Ala Leu Met Arg Pro Leu Val Val Thr Ala Gln Pro Gly	683		
195 200 205			
tcg ggg ccg ccg cga ccc tcc cgg cgc ctg cta gac ctg agc gtc ttc Ser Gly Pro Pro Arg Pro Ser Arg Arg Leu Leu Asp Leu Ser Val Phe	731		
210 215 220			
cgg gac cgc ggc ttt gtg ctt tac gcc gtg gcc gcc tcg gtc atg gtg Arg Asp Arg Gly Phe Val Leu Tyr Ala Val Ala Ala Ser Val Met Val	779		
225 230 235			
ctg ggg ctc ttc gtc ccg ccc gtg ttc gtg gtg agc tac gcc aag gac Leu Gly Leu Phe Val Pro Pro Val Phe Val Val Ser Tyr Ala Lys Asp	827		
240 245 250 255			
ctg ggc gtg ccc gac acc aag gcc gcc ttc ctg ctc acc atc ctg ggc Leu Gly Val Pro Asp Thr Lys Ala Ala Phe Leu Leu Thr Ile Leu Gly	875		
260 265 270			
ttc att gac atc ttc gcg cgg ccg gcc gcg ggc ttc gtg gcg ggg ctt Phe Ile Asp Ile Phe Ala Arg Pro Ala Ala Gly Phe Val Ala Gly Leu	923		
275 280 285			
ggg aag gtg cgg ccc tac tcc gtc tac ctc ttc agc ttc tcc atg ttc Gly Lys Val Arg Pro Tyr Ser Val Tyr Leu Phe Ser Phe Ser Met Phe	971		
290 295 300			

ttc aac ggc ctc gcg gac ctg gcg ggc tct acg gcg ggc gac tac ggc	1019
Phe Asn Gly Leu Ala Asp Leu Ala Gly Ser Thr Ala Gly Asp Tyr Gly	
305 310 315	
ggc ctc gtg gtc ttc tgc atc ttc ttt ggc atc tcc tac ggc atg gtg	1067
Gly Leu Val Val Phe Cys Ile Phe Phe Gly Ile Ser Tyr Gly Met Val	
320 325 330 335	
ggg gcc ctg cag ttc gag gtg ctc atg gcc atc gtg ggc acc cac aag	1115
Gly Ala Leu Gln Phe Glu Val Leu Met Ala Ile Val Gly Thr His Lys	
340 345 350	
ttc tcc agt gcc att ggc ctg gtg ctg ctg atg gag gcg gtg gcc gtg	1163
Phe Ser Ser Ala Ile Gly Leu Val Leu Leu Met Glu Ala Val Ala Val	
355 360 365	
ctc gtc ggg ccc cct tcg gga ggc aaa ctc ctg gat gcg acc cac gtc	1211
Leu Val Gly Pro Pro Ser Gly Gly Lys Leu Leu Asp Ala Thr His Val	
370 375 380	
tac atg tac gtg ttc atc ctg gcg ggg gcc gag gtg ctc acc tcc tcc	1259
Tyr Met Tyr Val Phe Ile Leu Ala Gly Ala Glu Val Leu Thr Ser Ser	
385 390 395	
ctg att ttg ctg ctg ggc aac ttc ttc tgc att agg aag aag ccc aaa	1307
Leu Ile Leu Leu Leu Gly Asn Phe Phe Cys Ile Arg Lys Lys Pro Lys	
400 405 410 415	
gag cca cag cct gag gtg gcg gcc gcg gag gag gag aag ctc cac aag	1355
Glu Pro Gln Pro Glu Val Ala Ala Ala Glu Glu Glu Lys Leu His Lys	
420 425 430	
cct cct gca gac tcg ggg gtg gac ttg cgg gag gtg gag cat ttc ctg	1403
Pro Pro Ala Asp Ser Gly Val Asp Leu Arg Glu Val Glu His Phe Leu	
435 440 445	
aag gct gag cct gag aaa aac ggg gag gtg gtt cac acc ccg gaa aca	1451
Lys Ala Glu Pro Glu Lys Asn Gly Glu Val Val His Thr Pro Glu Thr	
450 455 460	
agt gtc tga gtggctgggc ggggccggca ggcacagggga ggaggtacag	1500
Ser Val *	
465	

aagccggcaa cgcttgctat ttattttaca aactggactg gctcaggcag ggccacggct	1560
gggctccagc tgccggccca gcggatcgtc gcccgatcag tgttttgagg gggaaggtgg	1620
cggggtggga accgtgtcat tccagagtgg atctgcggtg aagccaagcc gcaaggttac	1680
aaggcatcct caccaggggc cccgcctgct gctcccaggt ggcctgcggc cactgctatg	1740
ctcaaggacc tggaaaccca tgcttcgaga caacgtgact ttaatgggag ggtgggtggg	1800
ccgcagacag gctggcaggg caggtgctgc gtggggccct ctccagcccg tctaccctg	1860
ggctcacatg gggcctgtgc ccaccctct tgagtgtctt ggggacagct ctttccacc	1920
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tt	1982

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 <211> 465  
 <212> PRT  
 <213> Homo sapiens

<400> 30

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			20					25					30		
Gly	Phe	Ser	Tyr	Ala	Phe	Pro	Lys	Ala	Val	Ser	Val	Phe	Phe	Lys	Glu
		35					40					45			
Leu	Ile	Gln	Glu	Phe	Gly	Ile	Gly	Tyr	Ser	Asp	Thr	Ala	Trp	Ile	Ser
50						55					60				
Ser	Ile	Leu	Leu	Ala	Met	Leu	Tyr	Gly	Thr	Gly	Pro	Leu	Cys	Ser	Val
65					70					75					80
Cys	Val	Asn	Arg	Phe	Gly	Cys	Arg	Pro	Val	Met	Leu	Val	Gly	Gly	Leu
				85					90					95	
Phe	Ala	Ser	Leu	Gly	Met	Val	Ala	Ala	Ser	Phe	Cys	Arg	Ser	Ile	Ile
			100					105					110		
Gln	Val	Tyr	Leu	Thr	Thr	Gly	Val	Ile	Thr	Gly	Leu	Gly	Leu	Ala	Leu
		115					120					125			
Asn	Phe	Gln	Pro	Ser	Leu	Ile	Met	Leu	Asn	Arg	Tyr	Phe	Ser	Lys	Arg
130						135					140				
Arg	Pro	Met	Ala	Asn	Gly	Leu	Ala	Ala	Ala	Gly	Ser	Pro	Val	Phe	Leu
145					150					155					160
Cys	Ala	Leu	Ser	Pro	Leu	Gly	Gln	Leu	Leu	Gln	Asp	Arg	Tyr	Gly	Trp
				165				170						175	
Arg	Gly	Gly	Phe	Leu	Ile	Leu	Gly	Gly	Leu	Leu	Leu	Asn	Cys	Cys	Val
			180					185					190		
Cys	Ala	Ala	Leu	Met	Arg	Pro	Leu	Val	Val	Thr	Ala	Gln	Pro	Gly	Ser
		195					200					205			
Gly	Pro	Pro	Arg	Pro	Ser	Arg	Arg	Leu	Leu	Asp	Leu	Ser	Val	Phe	Arg
		210				215					220				
Asp	Arg	Gly	Phe	Val	Leu	Tyr	Ala	Val	Ala	Ala	Ser	Val	Met	Val	Leu
225					230					235					240
Gly	Leu	Phe	Val	Pro	Pro	Val	Phe	Val	Val	Ser	Tyr	Ala	Lys	Asp	Leu
				245					250					255	
Gly	Val	Pro	Asp	Thr	Lys	Ala	Ala	Phe	Leu	Leu	Thr	Ile	Leu	Gly	Phe
			260					265					270		
Ile	Asp	Ile	Phe	Ala	Arg	Pro	Ala	Ala	Gly	Phe	Val	Ala	Gly	Leu	Gly
		275					280					285			
Lys	Val	Arg	Pro	Tyr	Ser	Val	Tyr	Leu	Phe	Ser	Phe	Ser	Met	Phe	Phe
290						295					300				
Asn	Gly	Leu	Ala	Asp	Leu	Ala	Gly	Ser	Thr	Ala	Gly	Asp	Tyr	Gly	Gly
305					310					315					320
Leu	Val	Val	Phe	Cys	Ile	Phe	Phe	Gly	Ile	Ser	Tyr	Gly	Met	Val	Gly
				325					330					335	
Ala	Leu	Gln	Phe	Glu	Val	Leu	Met	Ala	Ile	Val	Gly	Thr	His	Lys	Phe
			340					345					350		
Ser	Ser	Ala	Ile	Gly	Leu	Val	Leu	Met	Glu	Ala	Val	Ala	Val	Leu	
		355					360				365				
Val	Gly	Pro	Pro	Ser	Gly	Gly	Lys	Leu	Leu	Asp	Ala	Thr	His	Val	Tyr
		370				375					380				
Met	Tyr	Val	Phe	Ile	Leu	Ala	Gly	Ala	Glu	Val	Leu	Thr	Ser	Ser	Leu
385					390					395					400
Ile	Leu	Leu	Leu	Gly	Asn	Phe	Phe	Cys	Ile	Arg	Lys	Lys	Pro	Lys	Glu
				405					410					415	
Pro	Gln	Pro	Glu	Val	Ala	Ala	Ala	Glu	Glu	Glu	Lys	Leu	His	Lys	Pro
			420					425					430		
Pro	Ala	Asp	Ser	Gly	Val	Asp	Leu	Arg	Glu	Val	Glu	His	Phe	Leu	Lys
		435					440					445			
Ala	Glu	Pro	Glu	Lys	Asn	Gly	Glu	Val	Val	His	Thr	Pro	Glu	Thr	Ser
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 <212> DNA  
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<220>  
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 Ser Ser Val Ile Gln Arg Lys Lys Val Ala Val Ile Gly Gly Gly Leu  
 5 10 15

gtt ggc tca tta caa gca tgc ttt ctt gca aag agg aat ttc cag att 154  
 Val Gly Ser Leu Gln Ala Cys Phe Leu Ala Lys Arg Asn Phe Gln Ile  
 20 25 30

gat gta tat gaa gct agg gaa gat act cga gtg gct acc ttc aca cgt 202  
 Asp Val Tyr Glu Ala Arg Glu Asp Thr Arg Val Ala Thr Phe Thr Arg  
 35 40 45 50

gga aga agc att aac tta gcc ctt tct cat aga gga cga caa gcc ttg 250  
 Gly Arg Ser Ile Asn Leu Ala Leu Ser His Arg Gly Arg Gln Ala Leu  
 55 60 65

aaa gct gtt ggc ctg gaa gat cag att gta tcc caa ggt att ccc atg 298  
 Lys Ala Val Gly Leu Glu Asp Gln Ile Val Ser Gln Gly Ile Pro Met  
 70 75 80

aga gca aga atg atc cac tct ctt tca gga aaa aag tct gca att ccc 346  
 Arg Ala Arg Met Ile His Ser Leu Ser Gly Lys Lys Ser Ala Ile Pro  
 85 90 95

tat ggg aca aag tct cag tat att ctt tct gta agc aga gaa aat cta 394  
 Tyr Gly Thr Lys Ser Gln Tyr Ile Leu Ser Val Ser Arg Glu Asn Leu  
 100 105 110

aac aag gat cta ttg act gct gct gag aaa tac ccc aat gtg aaa atg 442  
 Asn Lys Asp Leu Leu Thr Ala Ala Glu Lys Tyr Pro Asn Val Lys Met  
 115 120 125 130

cac ttt aac cac agg ctg ttg aaa tgt aat cca gag gaa gga atg atc 490  
 His Phe Asn His Arg Leu Leu Lys Cys Asn Pro Glu Glu Gly Met Ile  
 135 140 145

aca gtg ctt gga tct gac aaa gtt ccc aaa gat gtc act tgt gac ctc 538  
 Thr Val Leu Gly Ser Asp Lys Val Pro Lys Asp Val Thr Cys Asp Leu  
 150 155 160

att gta gga tgt gat gga gcc tat tca act gtc aga tct cac ctg atg 586  
 Ile Val Gly Cys Asp Gly Ala Tyr Ser Thr Val Arg Ser His Leu Met  
 165 170 175

aag aaa cct cgc ttt gat tac agt cag cag tac att cct cat ggg tac 634  
 Lys Lys Pro Arg Phe Asp Tyr Ser Gln Gln Tyr Ile Pro His Gly Tyr

180	185	190	
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aat tat ctg cat att tgg cct aga aat acc ttt atg atg att gca ctt Asn Tyr Leu His Ile Trp Pro Arg Asn Thr Phe Met Met Ile Ala Leu 215 220 225			730
cct aac atg aac aaa tca ttc aca tgt act ttg ttc atg ccc ttt gaa Pro Asn Met Asn Lys Ser Phe Thr Cys Thr Leu Phe Met Pro Phe Glu 230 235 240			778
gag ttt gaa aaa ctt cta acc agt aat gat gtg gta gat ttc ttc cag Glu Phe Glu Lys Leu Leu Thr Ser Asn Asp Val Val Asp Phe Phe Gln 245 250 255			826
aaa tac ttt ccg gat gcc atc cct cta att gga gag aaa ctc cta gtg Lys Tyr Phe Pro Asp Ala Ile Pro Leu Ile Gly Glu Lys Leu Leu Val 260 265 270			874
caa gat ttc ttc ctg ttg cct gcc cag ccc atg ata tct gta aag tgc Gln Asp Phe Phe Leu Leu Pro Ala Gln Pro Met Ile Ser Val Lys Cys 275 280 285 290			922
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gac tgc ttg gta ttt gat gag tta atg gat aaa ttc agt aac gac ctt Asp Cys Leu Val Phe Asp Glu Leu Met Asp Lys Phe Ser Asn Asp Leu 325 330 335			1066
agt ttg tgt ctt cct gtg ttc tca aga ttg aga atc cca gat gat cac Ser Leu Cys Leu Pro Val Phe Ser Arg Leu Arg Ile Pro Asp Asp His 340 345 350			1114
gcg att tca gac cta tcc atg tac aat tac ata gag atg cga gca cat Ala Ile Ser Asp Leu Ser Met Tyr Asn Tyr Ile Glu Met Arg Ala His 355 360 365 370			1162
gtc aac tca agc tgg ttc att ttt cag aag aac atg gag aga ttt ctt Val Asn Ser Ser Trp Phe Ile Phe Gln Lys Asn Met Glu Arg Phe Leu 375 380 385			1210
cat gcg att atg cca tcg acc ttt atc cct ctc tat aca atg gtc act His Ala Ile Met Pro Ser Thr Phe Ile Pro Leu Tyr Thr Met Val Thr 390 395 400			1258
ttt tcc aga ata aga tac cat gag gct gtg cag cgt tgg cat tgg caa Phe Ser Arg Ile Arg Tyr His Glu Ala Val Gln Arg Trp His Trp Gln 405 410 415			1306
aaa aag gtg ata aac aaa gga ctc ttt ttc ttg gga tca ctg ata gcc Lys Lys Val Ile Asn Lys Gly Leu Phe Phe Leu Gly Ser Leu Ile Ala 420 425 430			1354

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atc agc agt acc tac cta ctt ata cac tac atg tca cca cga tct ttc 1402
Ile Ser Ser Thr Tyr Leu Leu Ile His Tyr Met Ser Pro Arg Ser Phe
435          440          445          450

ctc tgc ttg aga aga cca tgg aac tgg ata gct cac ttc cgg aat aca 1450
Leu Cys Leu Arg Arg Pro Trp Asn Trp Ile Ala His Phe Arg Asn Thr
          455          460          465

aca tgt ttc ccc gca aag gcc gtg gac tcc cta gaa caa att tcc aat 1498
Thr Cys Phe Pro Ala Lys Ala Val Asp Ser Leu Glu Gln Ile Ser Asn
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ctc att agc agg tga tagaaagggtt ttgtggtagc aaatgcatga tttctctgtg 1553
Leu Ile Ser Arg *
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<210> 32
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<212> PRT
<213> Homo sapiens

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Gln Ile Asp Val Tyr Glu Ala Arg Glu Asp Thr Arg Val Ala Thr Phe
35     40     45
Thr Arg Gly Arg Ser Ile Asn Leu Ala Leu Ser His Arg Gly Arg Gln
50     55     60
Ala Leu Lys Ala Val Gly Leu Glu Asp Gln Ile Val Ser Gln Gly Ile
65     70     75     80
Pro Met Arg Ala Arg Met Ile His Ser Leu Ser Gly Lys Lys Ser Ala
85     90     95
Ile Pro Tyr Gly Thr Lys Ser Gln Tyr Ile Leu Ser Val Ser Arg Glu
100    105    110
Asn Leu Asn Lys Asp Leu Leu Thr Ala Ala Glu Lys Tyr Pro Asn Val
115    120    125
Lys Met His Phe Asn His Arg Leu Leu Lys Cys Asn Pro Glu Glu Gly
130    135    140
Met Ile Thr Val Leu Gly Ser Asp Lys Val Pro Lys Asp Val Thr Cys
145    150    155    160
Asp Leu Ile Val Gly Cys Asp Gly Ala Tyr Ser Thr Val Arg Ser His
165    170    175
Leu Met Lys Lys Pro Arg Phe Asp Tyr Ser Gln Gln Tyr Ile Pro His
180    185    190
Gly Tyr Met Glu Leu Thr Ile Pro Pro Lys Asn Gly Asp Tyr Ala Met
195    200    205
Glu Pro Asn Tyr Leu His Ile Trp Pro Arg Asn Thr Phe Met Met Ile
210    215    220
Ala Leu Pro Asn Met Asn Lys Ser Phe Thr Cys Thr Leu Phe Met Pro

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Ser Pro Ala Ser Val Tyr Val Val Lys Ile Thr Gly Glu Ser Lys Asn							
		55		60		65	
tat ttc ttc gaa ttt gag gaa ttc aac agc act ttg cct cct cct gtt	418						
Tyr Phe Phe Glu Phe Glu Glu Phe Asn Ser Thr Leu Pro Pro Pro Val		70		75		80	
att ttc aag gcc agt tat cat ggc ctt tat tat ata atc act ctg gta	466						
Ile Phe Lys Ala Ser Tyr His Gly Leu Tyr Tyr Ile Ile Thr Leu Val		85		90		95	
gtg gta aat gga aat gtg gtg acc aag cca tcc aga tca atc act gtg	514						
Val Val Asn Gly Asn Val Val Thr Lys Pro Ser Arg Ser Ile Thr Val		100		105		110	
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Leu Thr Lys Pro Leu Pro Val Thr Ser Val Ser Ile Tyr Asp Tyr Lys		115		120		125	130
cct tct cct gaa aca gga gtc ctg ttt gaa ata cat tat cca gaa aaa	610						
Pro Ser Pro Glu Thr Gly Val Leu Phe Glu Ile His Tyr Pro Glu Lys		135		140		145	
tat aac gtt ttc aca aga gtg aac att agc tac tgg gaa ggt aaa gac	658						
Tyr Asn Val Phe Thr Arg Val Asn Ile Ser Tyr Trp Glu Gly Lys Asp		150		155		160	
ttc cgg aca atg cta tat aaa gat ttc ttt aag gga aaa aca gta ttt	706						
Phe Arg Thr Met Leu Tyr Lys Asp Phe Phe Lys Gly Lys Thr Val Phe		165		170		175	
aat cac tgg ctg cca gga atg tgt tat agt aat atc acc ttt cag ctg	754						
Asn His Trp Leu Pro Gly Met Cys Tyr Ser Asn Ile Thr Phe Gln Leu		180		185		190	
gta tct gag gca act ttt aat aaa agt acc ctt gtt gag tac agt ggt	802						
Val Ser Glu Ala Thr Phe Asn Lys Ser Thr Leu Val Glu Tyr Ser Gly		195		200		205	210
gtc agt cac gaa ccc aaa cag cac aga act gcc cct tat cca cct caa	850						
Val Ser His Glu Glu Lys Gln His Arg Thr Ala Pro Tyr Pro Pro Gln		215		220		225	
aat att tcc gtt cgt atc gta aac ttg aac aaa aac aac tgg gaa gaa	898						
Asn Ile Ser Val Arg Ile Val Asn Leu Asn Lys Asn Asn Trp Glu Glu		230		235		240	
cag agt ggc aat ttc cca gaa gaa tcc ttc atg aga tca caa gat aca	946						
Gln Ser Gly Asn Phe Pro Glu Glu Ser Phe Met Arg Ser Gln Asp Thr		245		250		255	
ata gga aaa gaa aaa ctc ttc cat ttt aca gaa gaa acc cct gaa att	994						
Ile Gly Lys Glu Lys Leu Phe His Phe Thr Glu Glu Thr Pro Glu Ile		260		265		270	
ccc tcg ggc aac att tct tcc ggt tgg cct gat ttt aat agc agt gac	1042						
Pro Ser Gly Asn Ile Ser Ser Gly Trp Pro Asp Phe Asn Ser Ser Asp		275		280		285	290



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cct gaa agt gaa gat gaa ttt gtc agc gta ctt ccc atg gaa tac gaa	1138
Pro Glu Ser Glu Asp Glu Phe Val Ser Val Leu Pro Met Glu Tyr Glu	
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Asn Asn Ser Thr Leu Ser Glu Thr Glu Lys Ser Thr Ser Gly Ser Phe	
325 330 335	
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Ser Phe Phe Pro Val Gln Met Ile Leu Thr Trp Leu Pro Pro Lys Pro	
340 345 350	
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Pro Thr Ala Phe Asp Gly Phe His Ile His Ile Glu Arg Glu Glu Asn	
355 360 365 370	
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Phe Thr Glu Tyr Leu Met Val Asp Glu Glu Ala His Glu Phe Val Ala	
375 380 385	
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Glu Leu Lys Glu Pro Gly Lys Tyr Lys Leu Ser Val Thr Thr Phe Ser	
390 395 400	
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Ser Ser Gly Ser Cys Glu Thr Arg Lys Ser Gln Ser Ala Lys Ser Leu	
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Ser Phe Tyr Ile Ser Pro Ser Gly Glu Trp Ile Glu Glu Leu Thr Glu	
420 425 430	
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Lys Pro Gln His Val Ser Val His Val Leu Ser Ser Thr Thr Ala Leu	
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Val Val Ser Leu Thr Cys Gln Lys Gln Lys Glu Ser Gln Arg Leu Glu	
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Pro Leu Ile Gly Pro Pro Ser Asp Pro Val Thr Phe Ala Ile Val Pro	
515 520 525 530	

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Thr Gly Ile Lys Asp Leu Met Leu Tyr Pro Leu Gly Pro Thr Ala Val	
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Val Leu Ser Trp Thr Arg Pro Tyr Leu Gly Val Phe Arg Lys Tyr Val	
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565 570 575	
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Thr Tyr Tyr Glu Ile Ala Ala Thr Val Ser Leu Thr Ala Ser Val Arg	
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Ile Ala Asn Leu Leu Pro Ala Trp Tyr Tyr Asn Phe Arg Val Thr Met	
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Val Thr Trp Gly Asp Pro Glu Leu Ser Cys Cys Asp Ser Ser Thr Ile	
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Ser Phe Ile Thr Ala Pro Val Ala Pro Glu Ile Thr Ser Val Glu Tyr	
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Phe Asn Ser Leu Leu Tyr Ile Ser Trp Thr Tyr Gly Asp Asp Thr Thr	
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Asp Leu Ser His Ser Arg Met Leu His Trp Met Val Val Ala Glu Gly	
660 665 670	
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Lys Lys Lys Ile Lys Lys Ser Val Thr Arg Asn Val Met Thr Ala Ile	
675 680 685 690	
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Thr Glu Arg Gly Ser Asn Thr Ser Met Leu Arg Leu Val Lys Leu Glu	
710 715 720	
cca gct cca ccc aaa tca ctc ttc gca gtg aac aaa acc cag act tca	2386
Pro Ala Pro Pro Lys Ser Leu Phe Ala Val Asn Lys Thr Gln Thr Ser	
725 730 735	
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Val Thr Leu Leu Trp Val Glu Glu Gly Val Ala Asp Phe Phe Glu Val	
740 745 750	
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Phe Cys Gln Gln Val Gly Ser Ser Gln Lys Thr Lys Leu Gln Glu Pro	
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Thr	Ala	Tyr	Asn	Cys	Ser	Val	Thr	Ser	Phe	Ser	His	Asp	Ser	Pro	Ser		
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Val	Pro	Thr	Phe	Ile	Ala	Val	Thr	Met	Val	Thr	Glu	Met	Asn	Pro			
			805				810					815					
aat	gtg	gta	gtg	atc	tcc	gtg	ctg	gcc	atc	ctt	agc	aca	ctt	tta	att	2674	
Asn	Val	Val	Val	Ile	Ser	Val	Leu	Ala	Ile	Leu	Ser	Thr	Leu	Leu	Ile		
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Gly	Leu	Leu	Leu	Val	Thr	Leu	Ile	Ile	Leu	Arg	Lys	Lys	His	Leu	Gln		
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atg	gct	agg	gag	tgt	gga	gct	ggt	aca	ttt	gtc	aat	ttt	gca	tcc	tta	2770	
Met	Ala	Arg	Glu	Cys	Gly	Ala	Gly	Thr	Phe	Val	Asn	Phe	Ala	Ser	Leu		
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gag	agg	gat	gga	aag	ctt	cca	tac	aac	tgg	agt	aaa	aat	ggt	tta	aag	2818	
Glu	Arg	Asp	Gly	Lys	Leu	Pro	Tyr	Asn	Trp	Ser	Lys	Asn	Gly	Leu	Lys		
			870					875					880				
aag	agg	aaa	ctg	aca	aac	ccg	gtt	caa	ctg	gat	gac	ttt	gat	gcc	tat	2866	
Lys	Arg	Lys	Leu	Thr	Asn	Pro	Val	Gln	Leu	Asp	Asp	Phe	Asp	Ala	Tyr		
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Ile	Lys	Asp	Met	Ala	Lys	Asp	Ser	Asp	Tyr	Lys	Phe	Ser	Leu	Gln	Phe		
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Leu	Pro	Leu	Asn	Arg	Cys	Lys	Asn	Arg	Tyr	Thr	Asn	Ile	Leu	Pro	Tyr		
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Asp	Phe	Ser	Arg	Val	Arg	Leu	Val	Ser	Met	Asn	Glu	Glu	Glu	Gly	Ala		
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Asp	Tyr	Ile	Asn	Ala	Asn	Tyr	Ile	Pro	Gly	Tyr	Asn	Ser	Pro	Gln	Glu		
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Lys	Met	Val	Leu	Gln	Gln	Lys	Ser	Gln	Ile	Ile	Val	Met	Leu	Thr	Gln		
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Cys	Asn	Glu	Lys	Arg	Arg	Val	Lys	Cys	Asp	His	Tyr	Trp	Pro	Phe	Thr		

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Glu Glu Gln Asp Asp Trp Ala Cys Arg His Phe Arg Ile Asn Tyr Ala			
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Asp Glu Met Gln Asp Val Met His Phe Asn Tyr Thr Ala Trp Pro Asp			
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His Gly Val Pro Thr Ala Asn Ala Ala Glu Ser Ile Leu Gln Phe Val			
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cac atg gtc cga cag caa gct acc aag agc aaa ggt ccc atg atc att			3490
His Met Val Arg Gln Gln Ala Thr Lys Ser Lys Gly Pro Met Ile Ile			
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His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile Ala Leu Asp			
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Arg Leu Leu Gln His Ile Arg Asp His Glu Phe Val Asp Ile Leu Gly			
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Lys Ser *			

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<210> 34

<211> 1188

<212> PRT

<213> Homo sapiens

<400> 34

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20          25          30
Thr Val Gln Asp Asp Asn Asn Ile Val Val Ser Leu Glu Ala Ser Asp
35          40          45
Val Ile Ser Pro Ala Ser Val Tyr Val Val Lys Ile Thr Gly Glu Ser
50          55          60
Lys Asn Tyr Phe Phe Glu Phe Glu Glu Phe Asn Ser Thr Leu Pro Pro
65          70          75          80
Pro Val Ile Phe Lys Ala Ser Tyr His Gly Leu Tyr Tyr Ile Ile Thr
85          90          95
Leu Val Val Val Asn Gly Asn Val Val Thr Lys Pro Ser Arg Ser Ile
100          105          110
Thr Val Leu Thr Lys Pro Leu Pro Val Thr Ser Val Ser Ile Tyr Asp
115          120          125
Tyr Lys Pro Ser Pro Glu Thr Gly Val Leu Phe Glu Ile His Tyr Pro
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Glu Lys Tyr Asn Val Phe Thr Arg Val Asn Ile Ser Tyr Trp Glu Gly
145          150          155          160
Lys Asp Phe Arg Thr Met Leu Tyr Lys Asp Phe Phe Lys Gly Lys Thr
165          170          175
Val Phe Asn His Trp Leu Pro Gly Met Cys Tyr Ser Asn Ile Thr Phe
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Gln Leu Val Ser Glu Ala Thr Phe Asn Lys Ser Thr Leu Val Glu Tyr
195          200          205
Ser Gly Val Ser His Glu Pro Lys Gln His Arg Thr Ala Pro Tyr Pro
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Pro Gln Asn Ile Ser Val Arg Ile Val Asn Leu Asn Lys Asn Asn Trp
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Glu Glu Gln Ser Gly Asn Phe Pro Glu Glu Ser Phe Met Arg Ser Gln
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Asp Thr Ile Gly Lys Glu Lys Leu Phe His Phe Thr Glu Glu Thr Pro
260          265          270
Glu Ile Pro Ser Gly Asn Ile Ser Ser Gly Trp Pro Asp Phe Asn Ser
275          280          285
Ser Asp Tyr Glu Thr Thr Ser Gln Pro Tyr Trp Trp Asp Ser Ala Ser
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Ala Ala Pro Glu Ser Glu Asp Glu Phe Val Ser Val Leu Pro Met Glu
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Tyr Glu Asn Asn Ser Thr Leu Ser Glu Thr Glu Lys Ser Thr Ser Gly

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Asn Pro Asn Val Val Val Ile Ser Val Leu Ala Ile Leu Ser Thr Leu  
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 Leu Ile Gly Leu Leu Leu Val Thr Leu Ile Ile Leu Arg Lys Lys His  
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 Leu Gln Met Ala Arg Glu Cys Gly Ala Gly Thr Phe Val Asn Phe Ala  
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 Ser Leu Glu Arg Asp Gly Lys Leu Pro Tyr Asn Trp Ser Lys Asn Gly  
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 Leu Lys Lys Arg Lys Leu Thr Asn Pro Val Gln Leu Asp Asp Phe Asp  
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 Ala Tyr Ile Lys Asp Met Ala Lys Asp Ser Asp Tyr Lys Phe Ser Leu  
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 Gln Phe Glu Glu Leu Lys Leu Ile Gly Leu Asp Ile Pro His Phe Ala  
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 Val Ser Lys Ser  
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 <222> (6)...(2129)

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Cys	Cys	Phe	Ala	Ala	Pro	Arg	Gln	Arg	Gln	Ser	Thr	Leu	Val	Leu	Phe	
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Pro	Gly	Asp	Leu	Arg	Thr	Asn	Leu	Thr	Asp	Arg	Gln	Leu	Ala	Glu	Glu	
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Tyr	Leu	Tyr	Arg	Tyr	Gly	Tyr	Thr	Arg	Val	Ala	Glu	Met	Arg	Gly	Glu	
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Ser	Lys	Ser	Leu	Gly	Pro	Ala	Leu	Leu	Leu	Leu	Gln	Lys	Gln	Leu	Ser	
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Thr	Pro	Arg	Cys	Gly	Val	Pro	Asp	Leu	Gly	Arg	Phe	Gln	Thr	Phe	Glu	
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Gly	Asp	Leu	Lys	Trp	His	His	His	Asn	Ile	Thr	Tyr	Trp	Ile	Gln	Asn	
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Gly	Asp	Gly	Tyr	Pro	Phe	Asp	Gly	Lys	Asp	Gly	Leu	Leu	Ala	His	Ala	
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Phe	Pro	Pro	Gly	Pro	Gly	Ile	Gln	Gly	Asp	Ala	His	Phe	Asp	Asp	Asp	
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gag	ttg	tgg	tcc	ctg	ggc	aag	ggc	gtc	gtg	gtt	cca	act	cgg	ttt	gga	674
Glu	Leu	Trp	Ser	Leu	Gly	Lys	Gly	Val	Val	Val	Pro	Thr	Arg	Phe	Gly	
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Asn	Ala	Asp	Gly	Ala	Ala	Cys	His	Phe	Pro	Phe	Ile	Phe	Glu	Gly	Arg	
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Ser	Tyr	Ser	Ala	Cys	Thr	Thr	Asp	Gly	Arg	Ser	Asp	Gly	Leu	Pro	Trp	



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ccc Pro	agc Ser	gag Glu	aga Arg 275	ctc Leu	tac Tyr	acc Thr	cgg Arg	gac Asp 280	ggc Gly	aat Asn	gct Ala	gat Asp	ggg Gly 285	aaa Lys	ccc Pro	866
tgc Cys	cag Gln	ttt Phe 290	cca Pro	ttc Phe	atc Ile	ttc Phe	caa Gln 295	ggc Gly	caa Gln	tcc Ser	tac Tyr	tcc Ser	gcc Ala	tgc Cys	acc Thr	914
acg Thr 305	gac Asp	ggg Gly	cgc Arg	tcc Ser	gac Asp	ggc Gly 310	tac Tyr	cgc Arg	tgg Trp	tgc Cys	gcc Ala 315	acc Thr	acc Thr	gcc Ala	aac Asn	962
tac Tyr 320	gac Asp	cgg Arg	gac Asp	aag Lys	ctc Leu 325	ttc Phe	ggc Gly	ttc Phe	tgc Cys 330	cgg Pro	acc Thr	cga Arg	gct Ala	gac Asp	tcg Ser 335	1010
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gcg Ala 400	cat His	gag Glu	ttc Phe	ggc Gly	cac His 405	gcg Ala	ctg Leu	ggc Gly	tta Leu 410	gat Asp	cat His	tcc Ser	tca Ser	gtg Val	ccg Pro 415	1250
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cat His	aag Lys	gac Asp	gac Asp	gtg Val 435	aat Asn	ggc Gly	atc Ile	cgg Arg 440	cac His	ctc Leu	tat Tyr	ggg Gly	cct Pro	cgc Arg	cct Pro	1346
gaa Glu	cct Pro	gag Glu	cca Pro	cgg Arg	cct Pro	cca Pro	acc Thr 455	acc Thr	acc Thr	aca Thr	ccg Pro	cag Gln	ccc Pro	acg Thr	gct Ala	1394
ccc Pro	ccg Pro 465	acg Thr	gtc Val	tgc Cys	ccc Pro	acc Thr 470	gga Gly	ccc Pro	ccc Pro	act Thr	gtc Val 475	cac His	ccc Pro	tca Ser	gag Glu	1442
cgc Arg 480	ccc Pro	aca Thr	gct Ala	ggc Gly	ccc Pro	aca Thr	ggg Gly	ccc Pro	ccc Pro	tca Ser 490	gct Ala	ggc Gly	ccc Pro	aca Thr	ggg Gly 495	1490

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Gly	Asn	Gln	Leu	Tyr	Leu	Phe	Lys	Asp	Gly	Lys	Tyr	Trp	Arg	Phe	Ser	
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Glu	Gly	Arg	Gly	Ser	Arg		Gln	Gly	Pro	Phe	Leu	Ile	Ala	Asp	Lys	
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tgg	ccc	gcg	ctg	ccc	cgc	aag	ctg	gac	tcg	gtc	ttt	gag	gag	ccg	ctc	1730
Trp	Pro	Ala	Leu	Pro	Arg	Lys	Leu	Asp	Ser	Val	Phe	Glu	Glu	Pro	Leu	
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Ser	Lys	Lys	Leu	Phe	Phe	Phe	Ser	Gly	Arg	Gln	Val	Trp	Val	Tyr	Thr	
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ggc	gcg	tcg	gtg	ctg	ggc	ccg	agg	cgt	ctg	gac	aag	ctg	ggc	ctg	gga	1826
Gly	Ala	Ser	Val	Leu	Gly	Pro	Arg	Arg	Leu	Asp	Lys	Leu	Gly	Leu	Gly	
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Ala	Asp	Val	Ala	Gln	Val	Thr	Gly	Ala	Leu	Arg	Ser	Gly	Arg	Gly	Lys	
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atg	ctg	ctg	ttc	agc	ggg	cgg	cgc	ctc	tgg	agg	ttc	gac	gtg	aag	gcg	1922
Met	Leu	Leu	Phe	Ser	Gly	Arg	Arg	Leu	Trp	Arg	Phe	Asp	Val	Lys	Ala	
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cag	atg	gtg	gat	ccc	cgg	agc	gcc	agc	gag	gtg	gac	cgg	atg	ttc	ccc	1970
Gln	Met	Val	Asp	Pro	Arg	Ser	Ala	Ser	Glu	Val	Asp	Arg	Met	Phe	Pro	
640					645					650					655	
ggg	gtg	cct	ttg	gac	acg	cac	gac	gtc	ttc	cag	tac	cga	gag	aaa	gcc	2018
Gly	Val	Pro	Leu	Asp	Thr	His	Asp	Val	Phe	Gln	Tyr	Arg	Glu	Lys	Ala	
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tat	ttc	tgc	cag	gac	cgc	ttc	tac	tgg	cgc	gtg	agt	tcc	cgg	agt	gag	2066
Tyr	Phe	Cys	Gln	Asp	Arg	Phe	Tyr	Trp	Arg	Val	Ser	Ser	Arg	Ser	Glu	
			675					680					685			
ttg	aac	cag	gtg	gac	caa	gtg	ggc	tac	gtg	acc	tat	gac	atc	ctg	cag	2114
Leu	Asn	Gln	Val	Asp	Gln	Val	Gly	Tyr	Val	Thr	Tyr	Asp	Ile	Leu	Gln	
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tgc	cct	gag	gac	tag	ggctcccgtc	ctgcttttggc	agtgccatgt	aaatccccac								2169
Cys	Pro	Glu	Asp	*												
	705															
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2373

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 <212> PRT  
 <213> Homo sapiens

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 Gly Asp Leu Arg Thr Asn Leu Thr Asp Arg Gln Leu Ala Glu Glu Tyr  
 35 40 45  
 Leu Tyr Arg Tyr Gly Tyr Thr Arg Val Ala Glu Met Arg Gly Glu Ser  
 50 55 60  
 Lys Ser Leu Gly Pro Ala Leu Leu Leu Leu Gln Lys Gln Leu Ser Leu  
 65 70 75 80  
 Pro Glu Thr Gly Glu Leu Asp Ser Ala Thr Leu Lys Ala Met Arg Thr  
 85 90 95  
 Pro Arg Cys Gly Val Pro Asp Leu Gly Arg Phe Gln Thr Phe Glu Gly  
 100 105 110  
 Asp Leu Lys Trp His His His Asn Ile Thr Tyr Trp Ile Gln Asn Tyr  
 115 120 125  
 Ser Glu Asp Leu Pro Arg Ala Val Ile Asp Asp Ala Phe Ala Arg Ala  
 130 135 140  
 Phe Ala Leu Trp Ser Ala Val Thr Pro Leu Thr Phe Thr Arg Val Tyr  
 145 150 155 160  
 Ser Arg Asp Ala Asp Ile Val Ile Gln Phe Gly Val Ala Glu His Gly  
 165 170 175  
 Asp Gly Tyr Pro Phe Asp Gly Lys Asp Gly Leu Leu Ala His Ala Phe  
 180 185 190  
 Pro Pro Gly Pro Gly Ile Gln Gly Asp Ala His Phe Asp Asp Asp Glu  
 195 200 205  
 Leu Trp Ser Leu Gly Lys Gly Val Val Val Pro Thr Arg Phe Gly Asn  
 210 215 220  
 Ala Asp Gly Ala Ala Cys His Phe Pro Phe Ile Phe Glu Gly Arg Ser  
 225 230 235 240  
 Tyr Ser Ala Cys Thr Thr Asp Gly Arg Ser Asp Gly Leu Pro Trp Cys  
 245 250 255  
 Ser Thr Thr Ala Asn Tyr Asp Thr Asp Asp Arg Phe Gly Phe Cys Pro  
 260 265 270  
 Ser Glu Arg Leu Tyr Thr Arg Asp Gly Asn Ala Asp Gly Lys Pro Cys  
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 Gln Phe Pro Phe Ile Phe Gln Gly Gln Ser Tyr Ser Ala Cys Thr Thr  
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 Asp Gly Arg Ser Asp Gly Tyr Arg Trp Cys Ala Thr Thr Ala Asn Tyr  
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 355 360 365  
 Gly Arg Leu Trp Cys Ala Thr Thr Ser Asn Phe Asp Ser Asp Lys Lys  
 370 375 380  
 Trp Gly Phe Cys Pro Asp Gln Gly Tyr Ser Leu Phe Leu Val Ala Ala  
 385 390 395 400  
 His Glu Phe Gly His Ala Leu Gly Leu Asp His Ser Ser Val Pro Glu  
 405 410 415  
 Ala Leu Met Tyr Pro Met Tyr Arg Phe Thr Glu Gly Pro Pro Leu His



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Lys Arg Cys Gly Gly Phe Leu Ile Gln Asp Asp Phe Val Leu Thr Ala	
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gct cac tgt tgg gga agc tcc ata aat gtc acc ttg ggg gcc cac aat	241
Ala His Cys Trp Gly Ser Ser Ile Asn Val Thr Leu Gly Ala His Asn	
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atc aaa gaa cag gag ccg acc cag cag ttt atc cct gtg aaa aga ccc	289
Ile Lys Glu Gln Glu Pro Thr Gln Gln Phe Ile Pro Val Lys Arg Pro	
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atc ccc cat cca gcc tat aat cct aag aac ttc tcc aac gac atc atg	337
Ile Pro His Pro Ala Tyr Asn Pro Lys Asn Phe Ser Asn Asp Ile Met	
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Leu Leu Gln Leu Glu Arg Lys Ala Lys Arg Thr Arg Ala Val Gln Pro	
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Leu Arg Leu Pro Ser Asn Lys Ala Gln Val Lys Pro Gly Gln Thr Cys	
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agt gtg gcc ggc tgg ggg cag acg gcc ccc ctg gga aaa cac tca cac	481
Ser Val Ala Gly Trp Gly Gln Thr Ala Pro Leu Gly Lys His Ser His	
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Thr Leu Gln Glu Val Lys Met Thr Val Gln Glu Asp Arg Lys Cys Glu	
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Ser Asp Leu Arg His Tyr Tyr Asp Ser Thr Ile Glu Leu Cys Val Gly	
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Asp Pro Glu Ile Lys Lys Thr Ser Phe Lys Gly Asp Ser Gly Gly Pro	
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Asn Gly Met Pro Pro Arg Ala Cys Thr Lys Val Ser Ser Phe Val His	
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Trp Ile Lys Lys Thr Met Lys Arg Tyr *	
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<400> 38

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Cys Gly Gly Phe Leu Ile Gln Asp Asp Phe Val Leu Thr Ala Ala His
50     55     60
Cys Trp Gly Ser Ser Ile Asn Val Thr Leu Gly Ala His Asn Ile Lys
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Glu Gln Glu Pro Thr Gln Gln Phe Ile Pro Val Lys Arg Pro Ile Pro
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Gln Leu Glu Arg Lys Ala Lys Arg Thr Arg Ala Val Gln Pro Leu Arg
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Ala Gly Trp Gly Gln Thr Ala Pro Leu Gly Lys His Ser His Thr Leu
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Gln Glu Val Lys Met Thr Val Gln Glu Asp Arg Lys Cys Glu Ser Asp
165    170    175
Leu Arg His Tyr Tyr Asp Ser Thr Ile Glu Leu Cys Val Gly Asp Pro
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Glu Ile Lys Lys Thr Ser Phe Lys Gly Asp Ser Gly Gly Pro Leu Val
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Cys Asn Lys Val Ala Gln Gly Ile Val Ser Tyr Gly Arg Asn Asn Gly
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<211> 1853

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<213> Homo sapiens

<220>

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<222> (27)...(1814)

<400> 39

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Val Phe Gln Tyr Glu Thr Asn Lys Val Thr Arg Ile Gln Ser Met Asn
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Tyr Gly Thr Ile Lys Trp Phe Phe His Val Ile Ile Phe Ser Tyr Val
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Cys Phe Ala Leu Val Ser Asp Lys Leu Tyr Gln Arg Lys Glu Pro Val
45     50     55

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Glu Ile Val Glu Asn Gly Val Lys Lys Leu Val His Ser Val Phe Asp	
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acc gca gac tac acc ttc cct ttg cag ggg aac tct ttc ttc gtg atg	341
Thr Ala Asp Tyr Thr Phe Pro Leu Gln Gly Asn Ser Phe Phe Val Met	
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aca aac ttt ctc aaa aca gaa ggc caa gag cag cgg ttg tgt ccc gag	389
Thr Asn Phe Leu Lys Thr Glu Gly Gln Glu Gln Arg Leu Cys Pro Glu	
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Tyr Pro Thr Arg Arg Thr Leu Cys Ser Ser Asp Arg Gly Cys Lys Lys	
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gga tgg atg gac ccg cag agc aaa gga att cag acc gga agg tgt gta	485
Gly Trp Met Asp Pro Gln Ser Lys Gly Ile Gln Thr Gly Arg Cys Val	
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Val His Glu Gly Asn Gln Lys Thr Cys Glu Val Ser Ala Trp Cys Pro	
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Ile Glu Ala Val Glu Glu Ala Pro Arg Pro Ala Leu Leu Asn Ser Ala	
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Glu Asn Phe Thr Val Leu Ile Lys Asn Asn Ile Asp Phe Pro Gly His	
190 195 200	
aac tac acc acg aga aac atc ctg cca ggt tta aac atc act tgt acc	677
Asn Tyr Thr Thr Arg Asn Ile Leu Pro Gly Leu Asn Ile Thr Cys Thr	
205 210 215	
ttc cac aag act cag aat cca cag tgt ccc att ttc cga cta gga gac	725
Phe His Lys Thr Gln Asn Pro Gln Cys Pro Ile Phe Arg Leu Gly Asp	
220 225 230	
atc ttc cga gaa aca ggc gat aat ttt tca gat gtg gca att cag ggc	773
Ile Phe Arg Glu Thr Gly Asp Asn Phe Ser Asp Val Ala Ile Gln Gly	
235 240 245	
gga ata atg ggc att gag atc tac tgg gac tgc aac cta gac cgt tgg	821
Gly Ile Met Gly Ile Glu Ile Tyr Trp Asp Cys Asn Leu Asp Arg Trp	
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ttc cat cac tgc cat ccc aaa tac agt ttc cgt cgc ctt gac gac aag	869
Phe His His Cys His Pro Lys Tyr Ser Phe Arg Arg Leu Asp Asp Lys	
270 275 280	
acc acc aac gtg tcc ttg tac cct ggc tac aac ttc aga tac gcc aag	917
Thr Thr Asn Val Ser Leu Tyr Pro Gly Tyr Asn Phe Arg Tyr Ala Lys	
285 290 295	
tac tac aag gaa aac aat gtt gag aaa cgg act ctg ata aaa gtc ttc	965

Tyr	Tyr	Lys	Glu	Asn	Asn	Val	Glu	Lys	Arg	Thr	Leu	Ile	Lys	Val	Phe		
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ggg	atc	cgt	ttt	gac	atc	ctg	gtt	ttt	ggc	acc	gga	gga	aaa	ttt	gac	1013	
Gly	Ile	Arg	Phe	Asp	Ile	Leu	Val	Phe	Gly	Thr	Gly	Gly	Lys	Phe	Asp		
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att	atc	cag	ctg	gtt	gtg	tac	atc	ggc	tca	acc	ctc	tcc	tac	ttc	ggt	1061	
Ile	Ile	Gln	Leu	Val	Val	Tyr	Ile	Gly	Ser	Thr	Leu	Ser	Tyr	Phe	Gly		
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ctg	gcc	gct	gtg	ttc	atc	gac	ttc	ctc	atc	gac	act	tac	tcc	agt	aac	1109	
Leu	Ala	Ala	Val	Phe	Ile	Asp	Phe	Leu	Ile	Asp	Thr	Tyr	Ser	Ser	Asn		
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tgc	tgt	cgc	tcc	cat	att	tat	ccc	tgg	tgc	aag	tgc	tgt	cag	ccc	tgt	1157	
Cys	Cys	Arg	Ser	His	Ile	Tyr	Pro	Trp	Cys	Lys	Cys	Cys	Gln	Pro	Cys		
		365						370					375				
gtg	gtc	aac	gaa	tac	tac	tac	agg	aag	aag	tgc	gag	tcc	att	gtg	gag	1205	
Val	Val	Asn	Glu	Tyr	Tyr	Tyr	Arg	Lys	Lys	Cys	Glu	Ser	Ile	Val	Glu		
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cca	aag	ccg	aca	tta	aag	tat	gtg	tcc	ttt	gtg	gat	gaa	tcc	cac	att	1253	
Pro	Lys	Pro	Thr	Leu	Lys	Tyr	Val	Ser	Phe	Val	Asp	Glu	Ser	His	Ile		
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agg	atg	gtg	aac	cag	cag	cta	cta	ggg	aga	agt	ctg	caa	gat	gtc	aag	1301	
Arg	Met	Val	Asn	Gln	Gln	Leu	Leu	Gly	Arg	Ser	Leu	Gln	Asp	Val	Lys		
410				415					420						425		
ggc	caa	gaa	gtc	cca	aga	cct	gcg	atg	gac	ttc	aca	gat	ttg	tcc	agg	1349	
Gly	Gln	Glu	Val	Pro	Arg	Pro	Ala	Met	Asp	Phe	Thr	Asp	Leu	Ser	Arg		
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Leu	Pro	Leu	Ala	Leu	His	Asp	Thr	Pro	Pro	Ile	Pro	Gly	Gln	Pro	Glu		
			445					450					455				
gag	ata	cag	ctg	ctt	aga	aag	gag	gcg	act	cct	aga	tcc	agg	gat	agc	1445	
Glu	Ile	Gln	Leu	Leu	Arg	Lys	Glu	Ala	Thr	Pro	Arg	Ser	Arg	Asp	Ser		
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ccc	gtc	tgg	tgc	cag	tgt	gga	agc	tgc	ctc	cca	tct	caa	ctc	cct	gag	1493	
Pro	Val	Trp	Cys	Gln	Cys	Gly	Ser	Cys	Leu	Pro	Ser	Gln	Leu	Pro	Glu		
	475					480					485						
agc	cac	agg	tgc	ctg	gag	gag	ctg	tgc	tgc	cgg	aaa	aag	ccg	ggg	gcc	1541	
Ser	His	Arg	Cys	Leu	Glu	Glu	Leu	Cys	Cys	Arg	Lys	Lys	Pro	Gly	Ala		
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Cys	Ile	Thr	Thr	Ser	Glu	Leu	Phe	Arg	Lys	Leu	Val	Leu	Ser	Arg	His		
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gtc	ctg	cag	ttc	ctc	ctg	ctc	tac	cag	gag	ccc	ttg	ctg	gcg	ctg	gat	1637	
Val	Leu	Gln	Phe	Leu	Leu	Leu	Tyr	Gln	Glu	Pro	Leu	Leu	Ala	Leu	Asp		
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gtg	gat	tcc	acc	aac	agc	cgg	ctg	cgg	cac	tgt	gcc	tac	agg	tgc	tac	1685	
Val	Asp	Ser	Thr	Asn	Ser	Arg	Leu	Arg	His	Cys	Ala	Tyr	Arg	Cys	Tyr		



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gcc acc tgg cgc ttc ggc tcc cag gac atg gct gac ttt gcc atc ctg			1733
Ala Thr Trp Arg Phe Gly Ser Gln Asp Met Ala Asp Phe Ala Ile Leu			
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ccc agc tgc tgc cgc tgg agg atc cgg aaa gag ttt ccg aag agt gaa			1781
Pro Ser Cys Cys Arg Trp Arg Ile Arg Lys Glu Phe Pro Lys Ser Glu			
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ggg cag tac agt ggc ttc aag agt cct tac tga agccaggcac cgtggctcac			1834
Gly Gln Tyr Ser Gly Phe Lys Ser Pro Tyr *			
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Phe His Val Ile Ile Phe Ser Tyr Val Cys Phe Ala Leu Val Ser Asp			
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Lys Leu Tyr Gln Arg Lys Glu Pro Val Ile Ser Ser Val His Thr Lys			
50 55 60			
Val Lys Gly Ile Ala Glu Val Lys Glu Glu Ile Val Glu Asn Gly Val			
65 70 75 80			
Lys Lys Leu Val His Ser Val Phe Asp Thr Ala Asp Tyr Thr Phe Pro			
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Leu Gln Gly Asn Ser Phe Phe Val Met Thr Asn Phe Leu Lys Thr Glu			
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Gly Gln Glu Gln Arg Leu Cys Pro Glu Tyr Pro Thr Arg Arg Thr Leu			
115 120 125			
Cys Ser Ser Asp Arg Gly Cys Lys Lys Gly Trp Met Asp Pro Gln Ser			
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Lys Gly Ile Gln Thr Gly Arg Cys Val Val His Glu Gly Asn Gln Lys			
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Thr Cys Glu Val Ser Ala Trp Cys Pro Ile Glu Ala Val Glu Glu Ala			
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Pro Arg Pro Ala Leu Leu Asn Ser Ala Glu Asn Phe Thr Val Leu Ile			
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Lys Asn Asn Ile Asp Phe Pro Gly His Asn Tyr Thr Thr Arg Asn Ile			
195 200 205			
Leu Pro Gly Leu Asn Ile Thr Cys Thr Phe His Lys Thr Gln Asn Pro			
210 215 220			
Gln Cys Pro Ile Phe Arg Leu Gly Asp Ile Phe Arg Glu Thr Gly Asp			
225 230 235 240			
Asn Phe Ser Asp Val Ala Ile Gln Gly Gly Ile Met Gly Ile Glu Ile			
245 250 255			
Tyr Trp Asp Cys Asn Leu Asp Arg Trp Phe His His Cys His Pro Lys			
260 265 270			
Tyr Ser Phe Arg Arg Leu Asp Asp Lys Thr Thr Asn Val Ser Leu Tyr			
275 280 285			
Pro Gly Tyr Asn Phe Arg Tyr Ala Lys Tyr Tyr Lys Glu Asn Asn Val			
290 295 300			
Glu Lys Arg Thr Leu Ile Lys Val Phe Gly Ile Arg Phe Asp Ile Leu			

305					310					315				320
Val	Phe	Gly	Thr	Gly	Gly	Lys	Phe	Asp	Ile	Ile	Gln	Leu	Val	Val
				325					330					335
Ile	Gly	Ser	Thr	Leu	Ser	Tyr	Phe	Gly	Leu	Ala	Ala	Val	Phe	Ile
			340					345					350	
Phe	Leu	Ile	Asp	Thr	Tyr	Ser	Ser	Asn	Cys	Cys	Arg	Ser	His	Ile
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Pro	Trp	Cys	Lys	Cys	Cys	Gln	Pro	Cys	Val	Val	Asn	Glu	Tyr	Tyr
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Arg	Lys	Lys	Cys	Glu	Ser	Ile	Val	Glu	Pro	Lys	Pro	Thr	Leu	Lys
385					390					395				400
Val	Ser	Phe	Val	Asp	Glu	Ser	His	Ile	Arg	Met	Val	Asn	Gln	Gln
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Leu	Gly	Arg	Ser	Leu	Gln	Asp	Val	Lys	Gly	Gln	Glu	Val	Pro	Arg
			420					425					430	
Ala	Met	Asp	Phe	Thr	Asp	Leu	Ser	Arg	Leu	Pro	Leu	Ala	Leu	His
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Thr	Pro	Pro	Ile	Pro	Gly	Gln	Pro	Glu	Glu	Ile	Gln	Leu	Leu	Arg
	450					455					460			
Glu	Ala	Thr	Pro	Arg	Ser	Arg	Asp	Ser	Pro	Val	Trp	Cys	Gln	Cys
465					470					475				480
Ser	Cys	Leu	Pro	Ser	Gln	Leu	Pro	Glu	Ser	His	Arg	Cys	Leu	Glu
				485					490					495
Leu	Cys	Cys	Arg	Lys	Lys	Pro	Gly	Ala	Cys	Ile	Thr	Thr	Ser	Glu
			500					505					510	
Phe	Arg	Lys	Leu	Val	Leu	Ser	Arg	His	Val	Leu	Gln	Phe	Leu	Leu
	515						520					525		
Tyr	Gln	Glu	Pro	Leu	Leu	Ala	Leu	Asp	Val	Asp	Ser	Thr	Asn	Ser
	530					535					540			
Leu	Arg	His	Cys	Ala	Tyr	Arg	Cys	Tyr	Ala	Thr	Trp	Arg	Phe	Gly
545					550					555				560
Gln	Asp	Met	Ala	Asp	Phe	Ala	Ile	Leu	Pro	Ser	Cys	Cys	Arg	Trp
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Ile	Arg	Lys	Glu	Phe	Pro	Lys	Ser	Glu	Gly	Gln	Tyr	Ser	Gly	Phe
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Ser	Pro	Tyr												
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 caac atg cag ccc tcc ggc ctc gag ggt ccc ggc acg ttt ggt cgg tgg 169  
 Met Gln Pro Ser Gly Leu Glu Gly Pro Gly Thr Phe Gly Arg Trp  
 1 5 10 15  
  
 cct ctg ctg agt ctg ctg ctc ctg ctg ctg ctg ctc cag cct gta acc 217  
 Pro Leu Leu Ser Leu Leu Leu Leu Leu Leu Leu Gln Pro Val Thr  
 20 25 30  
  
 tgt gcc tac acc acg cca ggc ccc ccc aga gcc ctc acc acg ctg ggc 265

Cys	Ala	Tyr	Thr	Thr	Pro	Gly	Pro	Pro	Arg	Ala	Leu	Thr	Thr	Leu	Gly		
			35					40					45				
gcc	ccc	aga	gcc	cac	acc	atg	ccg	ggc	acc	tac	gct	ccc	tcg	acc	aca	313	
Ala	Pro	Arg	Ala	His	Thr	Met	Pro	Gly	Thr	Tyr	Ala	Pro	Ser	Thr	Thr		
		50					55					60					
ctc	agt	agt	ccc	agc	acc	cag	ggc	ctg	caa	gag	cag	gca	cgg	gcc	ctg	361	
Leu	Ser	Ser	Pro	Ser	Thr	Gln	Gly	Leu	Gln	Glu	Gln	Ala	Arg	Ala	Leu		
	65					70					75						
atg	cgg	gac	ttc	ccg	ctc	gtg	gac	ggc	cac	aac	gac	ctg	ccc	ctg	gtc	409	
Met	Arg	Asp	Phe	Pro	Leu	Val	Asp	Gly	His	Asn	Asp	Leu	Pro	Leu	Val		
80					85					90					95		
cta	agg	cag	gtt	tac	cag	aaa	ggg	cta	cag	gat	gtt	aac	ctg	cgc	aat	457	
Leu	Arg	Gln	Val	Tyr	Gln	Lys	Gly	Leu	Gln	Asp	Val	Asn	Leu	Arg	Asn		
				100					105					110			
ttc	agc	tac	ggc	cag	acc	agc	ctg	gac	agg	ctt	aga	gat	ggc	ctc	gtg	505	
Phe	Ser	Tyr	Gly	Gln	Thr	Ser	Leu	Asp	Arg	Leu	Arg	Asp	Gly	Leu	Val		
			115					120					125				
ggc	gcc	cag	ttc	tgg	tca	gcc	tat	gtg	cca	tgc	cag	acc	cag	gac	cgg	553	
Gly	Ala	Gln	Phe	Trp	Ser	Ala	Tyr	Val	Pro	Cys	Gln	Thr	Gln	Asp	Arg		
		130					135					140					
gat	gcc	ctg	cgc	ctc	acc	ctg	gag	cag	att	gac	ctc	ata	cgc	cgc	atg	601	
Asp	Ala	Leu	Arg	Leu	Thr	Leu	Glu	Gln	Ile	Asp	Leu	Ile	Arg	Arg	Met		
	145					150					155						
tgt	gcc	tcc	tat	tct	gag	ctg	gag	ctt	gtg	acc	tcg	gct	aaa	gct	ctg	649	
Cys	Ala	Ser	Tyr	Ser	Glu	Leu	Glu	Leu	Val	Thr	Ser	Ala	Lys	Ala	Leu		
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aac	gac	act	cag	aaa	ttg	gcc	tgc	ctc	atc	ggt	gta	gag	ggt	ggc	cac	697	
Asn	Asp	Thr	Gln	Lys	Leu	Ala	Cys	Leu	Ile	Gly	Val	Glu	Gly	Gly	His		
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tcg	ctg	gac	aat	agc	ctc	tcc	atc	tta	cgt	acc	ttc	tac	atg	ctg	gga	745	
Ser	Leu	Asp	Asn	Ser	Leu	Ser	Ile	Leu	Arg	Thr	Phe	Tyr	Met	Leu	Gly		
			195					200					205				
gtg	cgc	tac	ctg	acg	ctc	acc	cac	acc	tgc	aac	aca	ccc	tgg	gca	gag	793	
Val	Arg	Tyr	Leu	Thr	Leu	Thr	His	Thr	Cys	Asn	Thr	Pro	Trp	Ala	Glu		
		210					215					220					
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Ser	Ser	Ala	Lys	Gly	Val	His	Ser	Phe	Tyr	Asn	Asn	Ile	Ser	Gly	Leu		
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Thr	Asp	Phe	Gly	Glu	Lys	Val	Val	Ala	Glu	Met	Asn	Arg	Leu	Gly	Met		
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Met	Val	Asp	Leu	Ser	His	Val	Ser	Asp	Ala	Val	Ala	Arg	Arg	Ala	Leu		
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gaa	gtg	tca	cag	gca	cct	gtg	atc	ttc	tcc	cac	tcg	gct	gcc	cgg	ggt	985	
Glu	Val	Ser	Gln	Ala	Pro	Val	Ile	Phe	Ser	His	Ser	Ala	Ala	Arg	Gly		

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Val	Cys	Asn	Ser	Ala	Arg	Asn	Val	Pro	Asp	Asp	Ile	Leu	Gln	Leu	Leu	
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Lys	Lys	Asn	Gly	Gly	Val	Val	Met	Val	Ser	Leu	Ser	Met	Gly	Val	Ile	
	305					310					315					
cag	tgc	aac	cca	tca	gcc	aat	gtg	tcc	act	gtg	gca	gat	cac	ttc	gac	1129
Gln	Cys	Asn	Pro	Ser	Ala	Asn	Val	Ser	Thr	Val	Ala	Asp	His	Phe	Asp	
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cac	atc	aag	gct	gtc	att	gga	tcc	aag	ttc	atc	ggg	att	ggt	gga	gat	1177
His	Ile	Lys	Ala	Val	Ile	Gly	Ser	Lys	Phe	Ile	Gly	Ile	Gly	Gly	Asp	
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tat	gat	ggg	gcc	ggc	aaa	ttc	cct	cag	ggg	ctg	gaa	gac	gtg	tcc	aca	1225
Tyr	Asp	Gly	Ala	Gly	Lys	Phe	Pro	Gln	Gly	Leu	Glu	Asp	Val	Ser	Thr	
		355						360					365			
tac	ccg	gtc	ctg	ata	gag	gag	ttg	ctg	agt	cgt	ggc	tgg	agt	gag	gaa	1273
Tyr	Pro	Val	Leu	Ile	Glu	Glu	Leu	Leu	Ser	Arg	Gly	Trp	Ser	Glu	Glu	
		370					375					380				
gag	ctt	cag	ggt	gtc	ctt	cgt	gga	aac	ctg	ctg	cgg	gtc	ttc	aga	caa	1321
Glu	Leu	Gln	Gly	Val	Leu	Arg	Gly	Asn	Leu	Leu	Arg	Val	Phe	Arg	Gln	
	385					390					395					
gtg	gaa	aag	gta	cag	gaa	gaa	aac	aaa	tgg	caa	agc	ccc	ttg	gag	gac	1369
Val	Glu	Lys	Val	Gln	Glu	Glu	Asn	Lys	Trp	Gln	Ser	Pro	Leu	Glu	Asp	
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Lys	Phe	Pro	Asp	Glu	Gln	Leu	Ser	Ser	Ser	Cys	His	Ser	Asp	Leu	Ser	
				420					425					430		
cgt	ctg	cgt	cag	aga	cag	agt	ctg	act	tca	ggc	cag	gaa	ctc	act	gag	1465
Arg	Leu	Arg	Gln	Arg	Gln	Ser	Leu	Thr	Ser	Gly	Gln	Glu	Leu	Thr	Glu	
			435					440					445			
att	ccc	ata	cac	tgg	aca	gcc	aag	tta	cca	gcc	aag	tgg	tca	gtc	tca	1513
Ile	Pro	Ile	His	Trp	Thr	Ala	Lys	Leu	Pro	Ala	Lys	Trp	Ser	Val	Ser	
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gag	tcc	tcc	ccc	cac	atg	gcc	cca	gtc	ctt	gca	ggt	gtg	gcc	acc	ttc	1561
Glu	Ser	Ser	Pro	His	Met	Ala	Pro	Val	Leu	Ala	Val	Val	Ala	Thr	Phe	
	465					470					475					
cca	gtc	ctt	att	ctg	tgg	ctc	tga	tgacccagtt	agtcctgcc	gatgtcactg						1615
Pro	Val	Leu	Ile	Leu	Trp	Leu	*									
480					485											
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Ala	Tyr	Thr	Thr	Pro	Gly	Pro	Pro	Arg	Ala	Leu	Thr	Thr	Leu	Gly	Ala
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Pro	Arg	Ala	His	Thr	Met	Pro	Gly	Thr	Tyr	Ala	Pro	Ser	Thr	Thr	Leu
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Ser	Ser	Pro	Ser	Thr	Gln	Gly	Leu	Gln	Glu	Gln	Ala	Arg	Ala	Leu	Met
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Arg	Asp	Phe	Pro	Leu	Val	Asp	Gly	His	Asn	Asp	Leu	Pro	Leu	Val	Leu
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Arg	Gln	Val	Tyr	Gln	Lys	Gly	Leu	Gln	Asp	Val	Asn	Leu	Arg	Asn	Phe
			100					105						110	
Ser	Tyr	Gly	Gln	Thr	Ser	Leu	Asp	Arg	Leu	Arg	Asp	Gly	Leu	Val	Gly
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Ala	Gln	Phe	Trp	Ser	Ala	Tyr	Val	Pro	Cys	Gln	Thr	Gln	Asp	Arg	Asp
		130				135					140				
Ala	Leu	Arg	Leu	Thr	Leu	Glu	Gln	Ile	Asp	Leu	Ile	Arg	Arg	Met	Cys
145					150					155					160
Ala	Ser	Tyr	Ser	Glu	Leu	Glu	Leu	Val	Thr	Ser	Ala	Lys	Ala	Leu	Asn
				165					170					175	
Asp	Thr	Gln	Lys	Leu	Ala	Cys	Leu	Ile	Gly	Val	Glu	Gly	Gly	His	Ser
			180					185					190		
Leu	Asp	Asn	Ser	Leu	Ser	Ile	Leu	Arg	Thr	Phe	Tyr	Met	Leu	Gly	Val
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Arg	Tyr	Leu	Thr	Leu	Thr	His	Thr	Cys	Asn	Thr	Pro	Trp	Ala	Glu	Ser
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Ser	Ala	Lys	Gly	Val	His	Ser	Phe	Tyr	Asn	Asn	Ile	Ser	Gly	Leu	Thr
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Val	Asp	Leu	Ser	His	Val	Ser	Asp	Ala	Val	Ala	Arg	Arg	Ala	Leu	Glu
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Val	Ser	Gln	Ala	Pro	Val	Ile	Phe	Ser	His	Ser	Ala	Ala	Arg	Gly	Val
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Cys	Asn	Ser	Ala	Arg	Asn	Val	Pro	Asp	Asp	Ile	Leu	Gln	Leu	Leu	Lys
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Lys	Asn	Gly	Gly	Val	Val	Met	Val	Ser	Leu	Ser	Met	Gly	Val	Ile	Gln
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Cys	Asn	Pro	Ser	Ala	Asn	Val	Ser	Thr	Val	Ala	Asp	His	Phe	Asp	His
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Ile	Lys	Ala	Val	Ile	Gly	Ser	Lys	Phe	Ile	Gly	Ile	Gly	Gly	Asp	Tyr
			340					345					350		
Asp	Gly	Ala	Gly	Lys	Phe	Pro	Gln	Gly	Leu	Glu	Asp	Val	Ser	Thr	Tyr
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Pro	Val	Leu	Ile	Glu	Glu	Leu	Leu	Ser	Arg	Gly	Trp	Ser	Glu	Glu	Glu
		370				375					380				
Leu	Gln	Gly	Val	Leu	Arg	Gly	Asn	Leu	Leu	Arg	Val	Phe	Arg	Gln	Val
385					390					395					400
Glu	Lys	Val	Gln	Glu	Glu	Asn	Lys	Trp	Gln	Ser	Pro	Leu	Glu	Asp	Lys
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Phe	Pro	Asp	Glu	Gln	Leu	Ser	Ser	Ser	Cys	His	Ser	Asp	Leu	Ser	Arg
			420					425					430		
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Ser	Ser	Pro	His	Met	Ala	Pro	Val	Leu	Ala	Val	Val	Ala	Thr	Phe	Pro



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gcc aat gag ctt tcg gga ctg ccc aag gtg cgc ctg atc cgc gcc aac Ala Asn Glu Leu Ser Gly Leu Pro Lys Val Arg Leu Ile Arg Ala Asn 190 195 200	689
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gct gtg agt aag aaa tat ttt gaa tat ctg ggg tct tat gat aca gga Ala Val Ser Lys Lys Tyr Phe Glu Tyr Leu Gly Ser Tyr Asp Thr Gly 320 325 330	1073
atg gaa gtt tgg gga gga gaa aac ctc gaa ttt tcc ttt agg atc tgg Met Glu Val Trp Gly Gly Glu Asn Leu Glu Phe Ser Phe Arg Ile Trp 335 340 345	1121
cag tgt ggt ggg gtt ctg gaa aca cac cca tgt tcc cat gtt ggc cat Gln Cys Gly Gly Val Leu Glu Thr His Pro Cys Ser His Val Gly His 350 355 360	1169
gtt ttc ccc aag caa gct ccc tac tcc cgc aac aag gct ctg gcc aac Val Phe Pro Lys Gln Ala Pro Tyr Ser Arg Asn Lys Ala Leu Ala Asn 365 370 375	1217
agt gtt cgt gca gct gaa gta tgg atg gat gaa ttt aaa gag ctc tac Ser Val Arg Ala Ala Glu Val Trp Met Asp Glu Phe Lys Glu Leu Tyr 380 385 390 395	1265
tac cat cgc aac ccc cgt gcc cgc ttg gaa cct ttt ggg gat gtg aca Tyr His Arg Asn Pro Arg Ala Arg Leu Glu Pro Phe Gly Asp Val Thr 400 405 410	1313
gag agg aag cag ctc cgg gac aag ctc cag tgt aaa gac ttc aag tgg	1361

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Phe	Leu	Glu	Thr	Val	Tyr	Pro	Glu	Leu	His	Val	Pro	Glu	Asp	Arg	Pro	
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Gly	Phe	Phe	Gly	Met	Leu	Gln	Asn	Lys	Gly	Leu	Thr	Asp	Tyr	Cys	Phe	
	445					450					455					
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Asp	Tyr	Asn	Pro	Pro	Asp	Glu	Asn	Gln	Ile	Val	Gly	His	Gln	Val	Ile	
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Leu	Tyr	Leu	Cys	His	Gly	Met	Gly	Gln	Asn	Gln	Phe	Phe	Glu	Tyr	Thr	
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Phe	His	Glu	Gln	Ser	Lys	Lys	Cys	Val	Gln	Ala	Ala	Arg	Lys	Glu	Ser	
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Ser	Asp	Ser	Phe	Val	Pro	Leu	Leu	Arg	Asp	Cys	Thr	Asn	Ser	Asp	His	
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Gln	Lys	Trp	Phe	Phe	Lys	Glu	Arg	Met	Leu	*						
		575						580								
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<210> 44  
 <211> 581  
 <212> PRT  
 <213> Homo sapiens

<400> 44

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Leu	Gly	Ser	Val	Leu	Arg	Ala	Gln	Arg	Gly	Ala	Gly	Ala	Gly	Ala	Ala
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Glu	Pro	Gly	Pro	Pro	Arg	Thr	Pro	Arg	Pro	Gly	Arg	Arg	Glu	Pro	Val
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Ala	Val	Arg	Leu	Gln	Leu	Gln	Gly	Glu	Glu	Leu	Arg	Leu	Gln	Glu	Glu
				85					90					95	
Ser	Val	Arg	Leu	His	Gln	Ile	Asn	Ile	Tyr	Leu	Ser	Asp	Arg	Ile	Ser
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Lys	Tyr	Asp	Tyr	Asp	Asn	Leu	Pro	Arg	Thr	Ser	Val	Ile	Ile	Ala	Phe
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Tyr	Asn	Glu	Ala	Trp	Ser	Thr	Leu	Leu	Arg	Thr	Val	Tyr	Ser	Val	Leu
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Glu	Thr	Ser	Pro	Asp	Ile	Leu	Leu	Glu	Glu	Val	Ile	Leu	Val	Asp	Asp
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Tyr	Ser	Asp	Arg	Glu	His	Leu	Lys	Glu	Arg	Leu	Ala	Asn	Glu	Leu	Ser
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Gly	Leu	Pro	Lys	Val	Arg	Leu	Ile	Arg	Ala	Asn	Lys	Arg	Glu	Gly	Leu
	195						200					205			
Val	Arg	Ala	Arg	Leu	Leu	Gly	Ala	Ser	Ala	Ala	Arg	Gly	Asp	Val	Leu
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Thr	Phe	Leu	Asp	Cys	His	Cys	Glu	Cys	His	Glu	Gly	Trp	Leu	Glu	Pro
225				230						235					240
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Ile	Asp	Val	Ile	Asp	Trp	Asn	Thr	Phe	Glu	Tyr	Leu	Gly	Asn	Ser	Gly
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Ile	Arg	Ser	Pro	Thr	Met	Ala	Gly	Gly	Leu	Phe	Ala	Val	Ser	Lys	Lys
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Tyr	Phe	Glu	Tyr	Leu	Gly	Ser	Tyr	Asp	Thr	Gly	Met	Glu	Val	Trp	Gly
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Gly	Glu	Asn	Leu	Glu	Phe	Ser	Phe	Arg	Ile	Trp	Gln	Cys	Gly	Gly	Val
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Leu	Glu	Thr	His	Pro	Cys	Ser	His	Val	Gly	His	Val	Phe	Pro	Lys	Gln
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Ala	Pro	Tyr	Ser	Arg	Asn	Lys	Ala	Leu	Ala	Asn	Ser	Val	Arg	Ala	Ala
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Glu	Val	Trp	Met	Asp	Glu	Phe	Lys	Glu	Leu	Tyr	Tyr	His	Arg	Asn	Pro
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Arg	Ala	Arg	Leu	Glu	Pro	Phe	Gly	Asp	Val	Thr	Glu	Arg	Lys	Gln	Leu
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Arg	Asp	Lys	Leu	Gln	Cys	Lys	Asp	Phe	Lys	Trp	Phe	Leu	Glu	Thr	Val
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Phe Lys Leu Pro Phe Tyr Val Gly Ala Gln Phe Leu Gly Ala Phe Val	
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ggg gct gca acc gtc ttt ggc att tac tat gat gga ctt atg tcc ttt	621
Gly Ala Ala Thr Val Phe Gly Ile Tyr Tyr Asp Gly Leu Met Ser Phe	
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Ala Gly Gly Lys Leu Leu Ile Val Gly Glu Asn Ala Thr Ala His Ile	
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Phe Ala Thr Tyr Pro Ala Pro Tyr Leu Ser Leu Ala Asn Ala Phe Ala	
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Asp Gln Val Val Ala Thr Met Ile Leu Leu Ile Ile Val Phe Ala Ile	
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Phe Asp Ser Arg Asn Leu Gly Ala Pro Arg Gly Leu Glu Pro Ile Ala	
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Ile Gly Leu Leu Ile Ile Val Ile Ala Ser Ser Leu Gly Leu Asn Ser	
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Gly Cys Ala Met Asn Pro Ala Arg Asp Leu Ser Pro Arg Leu Phe Thr	
215 220 225	
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Ala Leu Ala Gly Trp Gly Phe Glu Val Phe Arg Ala Gly Asn Asn Phe	
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Trp Trp Ile Pro Val Val Gly Pro Leu Val Gly Ala Val Ile Gly Gly	
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Leu Ile Tyr Val Leu Val Ile Glu Ile His His Pro Glu Pro Asp Ser	
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Val Phe Lys Ala Glu Gln Ser Glu Asp Lys Pro Glu Lys Tyr Glu Leu	
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Ser Val Ile Met *	
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<210> 46

<211> 295

<212> PRT

<213> Homo sapiens

<400> 46

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 50          55          60
Ser Met Ala Val Ala Met Ala Ile Tyr Val Ala Gly Gly Val Ser Gly
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Gly His Ile Asn Pro Ala Val Ser Leu Ala Met Cys Leu Phe Gly Arg
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Met Lys Trp Phe Lys Leu Pro Phe Tyr Val Gly Ala Gln Phe Leu Gly
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Ala Phe Val Gly Ala Ala Thr Val Phe Gly Ile Tyr Tyr Asp Gly Leu
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130          135          140
Ala His Ile Phe Ala Thr Tyr Pro Ala Pro Tyr Leu Ser Leu Ala Asn
145          150          155          160
Ala Phe Ala Asp Gln Val Val Ala Thr Met Ile Leu Leu Ile Ile Val
165          170          175
Phe Ala Ile Phe Asp Ser Arg Asn Leu Gly Ala Pro Arg Gly Leu Glu
180          185          190
Pro Ile Ala Ile Gly Leu Leu Ile Ile Val Ile Ala Ser Ser Leu Gly
195          200          205
Leu Asn Ser Gly Cys Ala Met Asn Pro Ala Arg Asp Leu Ser Pro Arg
210          215          220
Leu Phe Thr Ala Leu Ala Gly Trp Gly Phe Glu Val Phe Arg Ala Gly
225          230          235          240
Asn Asn Phe Trp Trp Ile Pro Val Val Gly Pro Leu Val Gly Ala Val
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Ile Gly Gly Leu Ile Tyr Val Leu Val Ile Glu Ile His His Pro Glu

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Tyr	Glu	Leu	Ser	Val	Ile	Met											
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Gly	Cys	Ala	Phe	Val	Leu	Phe	Leu	Phe	Leu	Leu	His	Arg	Asp	Val	Ser		
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Ser	Arg	Glu	Glu	Ala	Thr	Glu	Lys	Pro	Trp	Leu	Lys	Ser	Leu	Val	Ser		
		35					40					45					
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Arg	Lys	Asp	His	Val	Leu	Asp	Leu	Met	Leu	Glu	Ala	Met	Asn	Asn	Leu		
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Thr	Leu	Phe	Ser	Ile	Asn	Gln	Ser	Cys	Leu	Pro	Gly	Phe	Tyr	Thr	Pro		
				85					90					95			
gct	gaa	ctg	aag	ccc	ttc	tgg	gaa	cgg	cca	cca	cag	gac	ccc	aat	gcc	336	
Ala	Glu	Leu	Lys	Pro	Phe	Trp	Glu	Arg	Pro	Pro	Gln	Asp	Pro	Asn	Ala		
			100					105					110				
cct	ggg	gca	gat	gga	aaa	gca	ttt	cag	aag	agc	aag	tgg	acc	ccc	ctg	384	
Pro	Gly	Ala	Asp	Gly	Lys	Ala	Phe	Gln	Lys	Ser	Lys	Trp	Thr	Pro	Leu		
		115					120					125					
gag	acc	cag	gaa	aag	gaa	gaa	ggc	tat	aag	aag	cac	tgt	ttc	aat	gcc	432	
Glu	Thr	Gln	Glu	Lys	Glu	Glu	Gly	Tyr	Lys	Lys	His	Cys	Phe	Asn	Ala		
	130					135					140						
ttt	gcc	agc	gac	cgg	atc	tcc	ctg	cag	agg	tcc	ctg	ggg	cca	gac	acc	480	
Phe	Ala	Ser	Asp	Arg	Ile	Ser	Leu	Gln	Arg	Ser	Leu	Gly	Pro	Asp	Thr		
145					150				155						160		
cga	cca	cct	gag	tgt	gtg	gac	cag	aag	ttc	cgg	cgc	tgc	ccc	cca	ctg	528	
Arg	Pro	Pro	Glu	Cys	Val	Asp	Gln	Lys	Phe	Arg	Arg	Cys	Pro	Pro	Leu		
				165				170						175			

gcc acc acc agc gtg atc att gtg ttc cac aac gaa gcc tgg tcc aca	576
Ala Thr Thr Ser Val Ile Ile Val Phe His Asn Glu Ala Trp Ser Thr	
180 185 190	
ctg ctg cga aca gtg tac agc gtc cta cac acc acc cct gcc atc ttg	624
Leu Leu Arg Thr Val Tyr Ser Val Leu His Thr Thr Pro Ala Ile Leu	
195 200 205	
ctc aag gag atc ata ctg gtg gat gat gcc agc aca gag gag cac cta	672
Leu Lys Glu Ile Ile Leu Val Asp Asp Ala Ser Thr Glu Glu His Leu	
210 215 220	
aag gag aag ctg gag cag tac gtg aag cag ctg cag gtg gtg agg gtg	720
Lys Glu Lys Leu Glu Gln Tyr Val Lys Gln Leu Gln Val Val Arg Val	
225 230 235 240	
gtg cgg cag gag gag cgg aag ggg ttg atc acc gcc cgg ctg ctg ggg	768
Val Arg Gln Glu Glu Arg Lys Gly Leu Ile Thr Ala Arg Leu Leu Gly	
245 250 255	
gcc agc gtg gca cag gcg gag gtg ctc acg ttc ctg gat gcc cac tgt	816
Ala Ser Val Ala Gln Ala Glu Val Leu Thr Phe Leu Asp Ala His Cys	
260 265 270	
gag tgc ttc cac ggc tgg ctg gag ccc ctc ctg gct cga atc gct gag	864
Glu Cys Phe His Gly Trp Leu Glu Pro Leu Leu Ala Arg Ile Ala Glu	
275 280 285	
gac aag aca gtg gtg gtg agc cca gac atc gtc acc atc gac ctt aat	912
Asp Lys Thr Val Val Val Ser Pro Asp Ile Val Thr Ile Asp Leu Asn	
290 295 300	
act ttt gag ttc gcc aag ccc gtc cag agg ggc aga gtc cat agc cga	960
Thr Phe Glu Phe Ala Lys Pro Val Gln Arg Gly Arg Val His Ser Arg	
305 310 315 320	
ggc aac ttt gac tgg agc ctg acc ttc ggc tgg gaa aca ctt cct cca	1008
Gly Asn Phe Asp Trp Ser Leu Thr Phe Gly Trp Glu Thr Leu Pro Pro	
325 330 335	
cat gag aag cag agg cgc aag gat gaa aca tac ccc atc aaa tcc ccg	1056
His Glu Lys Gln Arg Arg Lys Asp Glu Thr Tyr Pro Ile Lys Ser Pro	
340 345 350	
acg ttt gct ggt ggc ctc ttc tcc atc ccc aag tcc tac ttt gag cac	1104
Thr Phe Ala Gly Gly Leu Phe Ser Ile Pro Lys Ser Tyr Phe Glu His	
355 360 365	
atc ggt acc tat gat aat cag atg gag atc tgg gga ggg gag aac gtg	1152
Ile Gly Thr Tyr Asp Asn Gln Met Glu Ile Trp Gly Gly Glu Asn Val	
370 375 380	
gaa atg tcc ttc cgg gtg tgg cag tgt ggg ggc cag ctg gag atc atc	1200
Glu Met Ser Phe Arg Val Trp Gln Cys Gly Gly Gln Leu Glu Ile Ile	
385 390 395 400	
ccc tgc tct gtc gta ggc cat gtg ttc cgg acc aag agc ccc cac acc	1248
Pro Cys Ser Val Val Gly His Val Phe Arg Thr Lys Ser Pro His Thr	
405 410 415	
ttc ccc aag ggc act agt gtc att gct cgc aat caa gtg cgc ctg gca	1296

Phe	Pro	Lys	Gly	Thr	Ser	Val	Ile	Ala	Arg	Asn	Gln	Val	Arg	Leu	Ala		
			420					425					430				
gag	gtc	tgg	atg	gac	agc	tac	aag	aag	att	ttc	tat	agg	aga	aat	ctg	1344	
Glu	Val	Trp	Met	Asp	Ser	Tyr	Lys	Lys	Ile	Phe	Tyr	Arg	Arg	Asn	Leu		
		435					440					445					
cag	gca	gca	aag	atg	gcc	caa	gag	aaa	tcc	ttc	ggg	gac	att	tcg	gaa	1392	
Gln	Ala	Ala	Lys	Met	Ala	Gln	Glu	Lys	Ser	Phe	Gly	Asp	Ile	Ser	Glu		
	450					455					460						
cga	ctg	cag	ctg	agg	gaa	caa	ctg	cac	tgt	cac	aac	ttt	tcc	tgg	tac	1440	
Arg	Leu	Gln	Leu	Arg	Glu	Gln	Leu	His	Cys	His	Asn	Phe	Ser	Trp	Tyr		
465					470					475					480		
ctg	cac	aat	gtc	tac	cca	gag	atg	ttt	gtt	cct	gac	ctg	acg	ccc	acc	1488	
Leu	His	Asn	Val	Tyr	Pro	Glu	Met	Phe	Val	Pro	Asp	Leu	Thr	Pro	Thr		
				485					490					495			
ttc	tat	ggg	gcc	atc	aag	aac	ctc	ggc	acc	aac	caa	tgc	ctg	gat	gtg	1536	
Phe	Tyr	Gly	Ala	Ile	Lys	Asn	Leu	Gly	Thr	Asn	Gln	Cys	Leu	Asp	Val		
			500					505					510				
ggg	gag	aac	aac	cgc	ggg	ggg	aag	ccc	ctc	atc	atg	tac	tcc	tgc	cac	1584	
Gly	Glu	Asn	Asn	Arg	Gly	Gly	Lys	Pro	Leu	Ile	Met	Tyr	Ser	Cys	His		
		515					520					525					
ggc	ctt	ggc	ggc	aac	cag	tac	ttt	gag	tac	aca	act	cag	agg	gac	ctt	1632	
Gly	Leu	Gly	Gly	Asn	Gln	Tyr	Phe	Glu	Tyr	Thr	Thr	Gln	Arg	Asp	Leu		
	530					535					540						
cgc	cac	aac	atc	gca	aag	cag	ctg	tgt	cta	cat	gtc	agc	aag	ggg	gct	1680	
Arg	His	Asn	Ile	Ala	Lys	Gln	Leu	Cys	Leu	His	Val	Ser	Lys	Gly	Ala		
545					550					555					560		
ctg	ggc	ctt	ggg	agc	tgt	cac	ttc	act	ggc	aag	aat	agc	cag	gtc	ccc	1728	
Leu	Gly	Leu	Gly	Ser	Cys	His	Phe	Thr	Gly	Lys	Asn	Ser	Gln	Val	Pro		
				565					570					575			
aag	gac	gag	gaa	tgg	gaa	ttg	gcc	cag	gat	cag	ctc	atc	agg	aac	tca	1776	
Lys	Asp	Glu	Glu	Trp	Glu	Leu	Ala	Gln	Asp	Gln	Leu	Ile	Arg	Asn	Ser		
			580					585					590				
gga	tct	ggg	acc	tgc	ctg	aca	tcc	cag	gac	aaa	aag	cca	gcc	atg	gcc	1824	
Gly	Ser	Gly	Thr	Cys	Leu	Thr	Ser	Gln	Asp	Lys	Lys	Pro	Ala	Met	Ala		
		595					600					605					
ccc	tgc	aat	ccc	agt	gac	ccc	cat	cag	ttg	tgg	ctc	ttt	gtc	tag		1869	
Pro	Cys	Asn	Pro	Ser	Asp	Pro	His	Gln	Leu	Trp	Leu	Phe	Val	*			
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<210> 48

<211> 622

<212> PRT

<213> Homo sapiens

<400> 48

Met	Arg	Leu	Leu	Arg	Arg	Arg	His	Met	Pro	Leu	Arg	Leu	Ala	Met	Val
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Gly	Cys	Ala	Phe	Val	Leu	Phe	Leu	Phe	Leu	Leu	His	Arg	Asp	Val	Ser
			20					25					30		
Ser	Arg	Glu	Glu	Ala	Thr	Glu	Lys	Pro	Trp	Leu	Lys	Ser	Leu	Val	Ser
		35					40					45			
Arg	Lys	Asp	His	Val	Leu	Asp	Leu	Met	Leu	Glu	Ala	Met	Asn	Asn	Leu
	50					55					60				
Arg	Asp	Ser	Met	Pro	Lys	Leu	Gln	Ile	Arg	Ala	Pro	Glu	Ala	Gln	Gln
65					70					75					80
Thr	Leu	Phe	Ser	Ile	Asn	Gln	Ser	Cys	Leu	Pro	Gly	Phe	Tyr	Thr	Pro
				85					90					95	
Ala	Glu	Leu	Lys	Pro	Phe	Trp	Glu	Arg	Pro	Pro	Gln	Asp	Pro	Asn	Ala
			100					105					110		
Pro	Gly	Ala	Asp	Gly	Lys	Ala	Phe	Gln	Lys	Ser	Lys	Trp	Thr	Pro	Leu
		115					120					125			
Glu	Thr	Gln	Glu	Lys	Glu	Glu	Gly	Tyr	Lys	Lys	His	Cys	Phe	Asn	Ala
	130					135					140				
Phe	Ala	Ser	Asp	Arg	Ile	Ser	Leu	Gln	Arg	Ser	Leu	Gly	Pro	Asp	Thr
145					150					155					160
Arg	Pro	Pro	Glu	Cys	Val	Asp	Gln	Lys	Phe	Arg	Arg	Cys	Pro	Pro	Leu
				165					170						175
Ala	Thr	Thr	Ser	Val	Ile	Ile	Val	Phe	His	Asn	Glu	Ala	Trp	Ser	Thr
			180					185					190		
Leu	Leu	Arg	Thr	Val	Tyr	Ser	Val	Leu	His	Thr	Thr	Pro	Ala	Ile	Leu
		195					200					205			
Leu	Lys	Glu	Ile	Ile	Leu	Val	Asp	Asp	Ala	Ser	Thr	Glu	Glu	His	Leu
	210					215					220				
Lys	Glu	Lys	Leu	Glu	Gln	Tyr	Val	Lys	Gln	Leu	Gln	Val	Val	Arg	Val
225					230					235					240
Val	Arg	Gln	Glu	Glu	Arg	Lys	Gly	Leu	Ile	Thr	Ala	Arg	Leu	Leu	Gly
				245					250					255	
Ala	Ser	Val	Ala	Gln	Ala	Glu	Val	Leu	Thr	Phe	Leu	Asp	Ala	His	Cys
			260					265					270		
Glu	Cys	Phe	His	Gly	Trp	Leu	Glu	Pro	Leu	Leu	Ala	Arg	Ile	Ala	Glu
		275					280					285			
Asp	Lys	Thr	Val	Val	Val	Ser	Pro	Asp	Ile	Val	Thr	Ile	Asp	Leu	Asn
	290					295					300				
Thr	Phe	Glu	Phe	Ala	Lys	Pro	Val	Gln	Arg	Gly	Arg	Val	His	Ser	Arg
305					310					315					320
Gly	Asn	Phe	Asp	Trp	Ser	Leu	Thr	Phe	Gly	Trp	Glu	Thr	Leu	Pro	Pro
				325					330					335	
His	Glu	Lys	Gln	Arg	Arg	Lys	Asp	Glu	Thr	Tyr	Pro	Ile	Lys	Ser	Pro
			340					345					350		
Thr	Phe	Ala	Gly	Gly	Leu	Phe	Ser	Ile	Pro	Lys	Ser	Tyr	Phe	Glu	His
		355				360						365			
Ile	Gly	Thr	Tyr	Asp	Asn	Gln	Met	Glu	Ile	Trp	Gly	Gly	Glu	Asn	Val
	370					375					380				
Glu	Met	Ser	Phe	Arg	Val	Trp	Gln	Cys	Gly	Gly	Gln	Leu	Glu	Ile	Ile
385					390					395					400
Pro	Cys	Ser	Val	Val	Gly	His	Val	Phe	Arg	Thr	Lys	Ser	Pro	His	Thr
				405					410					415	
Phe	Pro	Lys	Gly	Thr	Ser	Val	Ile	Ala	Arg	Asn	Gln	Val	Arg	Leu	Ala
			420					425					430		
Glu	Val	Trp	Met	Asp	Ser	Tyr	Lys	Lys	Ile	Phe	Tyr	Arg	Arg	Asn	Leu
		435					440					445			
Gln	Ala	Ala	Lys	Met	Ala	Gln	Glu	Lys	Ser	Phe	Gly	Asp	Ile	Ser	Glu
	450					455					460				
Arg	Leu	Gln	Leu	Arg	Glu	Gln	Leu	His	Cys	His	Asn	Phe	Ser	Trp	Tyr
465					470					475					480
Leu	His	Asn	Val	Tyr	Pro	Glu	Met	Phe	Val	Pro	Asp	Leu	Thr	Pro	Thr
			485						490					495	
Phe	Tyr	Gly	Ala	Ile	Lys	Asn	Leu	Gly	Thr	Asn	Gln	Cys	Leu	Asp	Val





Thr	Tyr	Pro	Ser	Met	Cys	Ala	Leu	Arg	Ala	Glu	Asn	Arg	Ala	Ala	Arg		
			125					130					135				
cgc	ctg	ggc	aag	gtc	ccg	gcc	gtg	cct	gtg	cag	tgg	ggg	aac	tgc	ggg	545	
Arg	Leu	Gly	Lys	Val	Pro	Ala	Val	Pro	Val	Gln	Trp	Gly	Asn	Cys	Gly		
		140					145					150					
gat	aca	ggg	acc	aga	agc	gca	ggc	ccg	ctc	agg	agg	aat	tac	aac	ttc	593	
Asp	Thr	Gly	Thr	Arg	Ser	Ala	Gly	Pro	Leu	Arg	Arg	Asn	Tyr	Asn	Phe		
	155					160					165						
atc	gcc	gcg	gtg	gtg	gag	aag	gtg	gcg	cca	tcg	gtg	gtt	cac	gtg	cag	641	
Ile	Ala	Ala	Val	Val	Glu	Lys	Val	Ala	Pro	Ser	Val	Val	His	Val	Gln		
170					175					180					185		
ctg	tgg	ggc	agg	tta	ctt	cac	ggc	agc	agg	ctt	gtt	cct	gtg	tac	agt	689	
Leu	Trp	Gly	Arg	Leu	Leu	His	Gly	Ser	Arg	Leu	Val	Pro	Val	Tyr	Ser		
			190					195						200			
ggc	tct	ggg	ttc	ata	gtg	tct	gag	gac	ggg	ctc	att	att	acc	aat	gcc	737	
Gly	Ser	Gly	Phe	Ile	Val	Ser	Glu	Asp	Gly	Leu	Ile	Ile	Thr	Asn	Ala		
			205					210					215				
cat	gtt	gtc	agg	aac	cag	cag	tgg	att	gag	gtg	gtg	ctc	cag	aat	ggg	785	
His	Val	Val	Arg	Asn	Gln	Gln	Trp	Ile	Glu	Val	Val	Leu	Gln	Asn	Gly		
		220					225					230					
gcc	cgt	tat	gaa	gct	gtt	gtc	aag	gat	att	gac	ctt	aaa	ttg	gat	ctt	833	
Ala	Arg	Tyr	Glu	Ala	Val	Val	Lys	Asp	Ile	Asp	Leu	Lys	Leu	Asp	Leu		
	235					240					245						
gcg	gtg	att	aag	att	gaa	tca	aat	gct	gaa	ctt	cct	gta	ctg	atg	ctg	881	
Ala	Val	Ile	Lys	Ile	Glu	Ser	Asn	Ala	Glu	Leu	Pro	Val	Leu	Met	Leu		
250					255					260					265		
gga	aga	tca	tct	gac	ctt	cgg	gct	gga	gag	ttt	gtg	gtg	gct	ttg	ggc	929	
Gly	Arg	Ser	Ser	Asp	Leu	Arg	Ala	Gly	Glu	Phe	Val	Val	Ala	Leu	Gly		
				270					275					280			
agc	cca	ttt	tct	ctg	cag	aac	aca	gct	act	gca	gga	att	gtc	agc	acc	977	
Ser	Pro	Phe	Ser	Leu	Gln	Asn	Thr	Ala	Thr	Ala	Gly	Ile	Val	Ser	Thr		
			285					290					295				
aaa	cag	cga	ggg	ggc	aaa	gaa	ctg	ggg	atg	aag	gat	tca	gat	atg	gac	1025	
Lys	Gln	Arg	Gly	Gly	Lys	Glu	Leu	Gly	Met	Lys	Asp	Ser	Asp	Met	Asp		
		300					305					310					
tac	gtc	cag	att	gat	gcc	aca	att	aac	tat	ggg	aat	tct	ggt	ggt	cct	1073	
Tyr	Val	Gln	Ile	Asp	Ala	Thr	Ile	Asn	Tyr	Gly	Asn	Ser	Gly	Gly	Pro		
	315				320						325						
ctg	gtg	aac	ttg	gat	ggt	gat	gtg	att	ggc	gtc	aat	tca	ttg	agg	gtg	1121	
Leu	Val	Asn	Leu	Asp	Gly	Asp	Val	Ile	Gly	Val	Asn	Ser	Leu	Arg	Val		
330					335					340					345		
act	gat	gga	atc	tcc	ttt	gca	att	cct	tca	gat	cga	gtt	agg	cag	ttc	1169	
Thr	Asp	Gly	Ile	Ser	Phe	Ala	Ile	Pro	Ser	Asp	Arg	Val	Arg	Gln	Phe		
				350				355						360			
ttg	gca	gaa	tac	cat	gag	cac	cag	atg	aaa	gga	aag	gcg	ttt	tca	aat	1217	
Leu	Ala	Glu	Tyr	His	Glu	His	Gln	Met	Lys	Gly	Lys	Ala	Phe	Ser	Asn		

365	370	375	
aag aaa tat ctg ggt ctg caa atg ctg tcc ctc act gtg ccc ctt agt			1265
Lys Lys Tyr Leu Gly Leu Gln Met Leu Ser Leu Thr Val Pro Leu Ser			
380	385	390	
gaa gaa ttg aaa atg cat tat cca gat ttc cct gat gtg agt tct ggg			1313
Glu Glu Leu Lys Met His Tyr Pro Asp Phe Pro Asp Val Ser Ser Gly			
395	400	405	
gtt tat gta tgt aaa gtg gtt gaa gga aca gct gct caa agc tct gga			1361
Val Tyr Val Cys Lys Val Val Glu Gly Thr Ala Ala Gln Ser Ser Gly			
410	415	420	425
ttg aga gat cac gat gta att gtc aac ata aat ggg aaa cct att act			1409
Leu Arg Asp His Asp Val Ile Val Asn Ile Asn Gly Lys Pro Ile Thr			
430	435	440	
act aca act gat gtt gtt aaa gct ctt gac agt gat tcc ctt tcc atg			1457
Thr Thr Thr Asp Val Val Lys Ala Leu Asp Ser Asp Ser Leu Ser Met			
445	450	455	
gct gtt ctt cgg gga aaa gat aat ttg ctc ctg aca gtc ata cct gaa			1505
Ala Val Leu Arg Gly Lys Asp Asn Leu Leu Leu Thr Val Ile Pro Glu			
460	465	470	
aca atc aat taa atatcttggt ttaaagtggg cttatct			1544
Thr Ile Asn *			
475			

<210> 50  
 <211> 476  
 <212> PRT  
 <213> Homo sapiens

<400> 50

Met	Ile	Arg	Pro	Gln	Leu	Arg	Thr	Ala	Gly	Leu	Gly	Arg	Cys	Leu	Leu
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Pro	Gly	Leu	Leu	Leu	Leu	Val	Pro	Val	Leu	Trp	Ala	Gly	Ala	Glu	
		20					25					30			
Lys	Leu	His	Thr	Gln	Pro	Ser	Cys	Pro	Ala	Val	Cys	Gln	Pro	Thr	Arg
		35					40					45			
Cys	Pro	Ala	Leu	Pro	Thr	Cys	Ala	Leu	Gly	Thr	Thr	Pro	Val	Phe	Asp
	50					55				60					
Leu	Cys	Arg	Cys	Cys	Arg	Val	Cys	Pro	Ala	Ala	Glu	Arg	Glu	Val	Cys
65					70					75					80
Gly	Gly	Ala	Gln	Gly	Gln	Pro	Cys	Ala	Pro	Gly	Leu	Gln	Cys	Leu	Gln
			85					90					95		
Pro	Leu	Arg	Pro	Gly	Phe	Pro	Ser	Thr	Cys	Gly	Cys	Pro	Thr	Leu	Gly
			100					105					110		
Gly	Ala	Val	Cys	Gly	Ser	Asp	Arg	Thr	Tyr	Pro	Ser	Met	Cys	Ala	
		115					120				125				
Leu	Arg	Ala	Glu	Asn	Arg	Ala	Ala	Arg	Arg	Leu	Gly	Lys	Val	Pro	Ala
		130				135					140				
Val	Pro	Val	Gln	Trp	Gly	Asn	Cys	Gly	Asp	Thr	Gly	Thr	Arg	Ser	Ala
145					150					155					160
Gly	Pro	Leu	Arg	Arg	Asn	Tyr	Asn	Phe	Ile	Ala	Ala	Val	Val	Glu	Lys
			165					170						175	
Val	Ala	Pro	Ser	Val	Val	His	Val	Gln	Leu	Trp	Gly	Arg	Leu	Leu	His
			180					185					190		

Gly	Ser	Arg	Leu	Val	Pro	Val	Tyr	Ser	Gly	Ser	Gly	Phe	Ile	Val	Ser
		195					200					205			
Glu	Asp	Gly	Leu	Ile	Ile	Thr	Asn	Ala	His	Val	Val	Arg	Asn	Gln	Gln
	210					215					220				
Trp	Ile	Glu	Val	Val	Leu	Gln	Asn	Gly	Ala	Arg	Tyr	Glu	Ala	Val	Val
	225				230					235					240
Lys	Asp	Ile	Asp	Leu	Lys	Leu	Asp	Leu	Ala	Val	Ile	Lys	Ile	Glu	Ser
			245						250					255	
Asn	Ala	Glu	Leu	Pro	Val	Leu	Met	Leu	Gly	Arg	Ser	Ser	Asp	Leu	Arg
			260					265					270		
Ala	Gly	Glu	Phe	Val	Val	Ala	Leu	Gly	Ser	Pro	Phe	Ser	Leu	Gln	Asn
	275						280					285			
Thr	Ala	Thr	Ala	Gly	Ile	Val	Ser	Thr	Lys	Gln	Arg	Gly	Gly	Lys	Glu
	290				295						300				
Leu	Gly	Met	Lys	Asp	Ser	Asp	Met	Asp	Tyr	Val	Gln	Ile	Asp	Ala	Thr
	305				310					315					320
Ile	Asn	Tyr	Gly	Asn	Ser	Gly	Gly	Pro	Leu	Val	Asn	Leu	Asp	Gly	Asp
			325					330						335	
Val	Ile	Gly	Val	Asn	Ser	Leu	Arg	Val	Thr	Asp	Gly	Ile	Ser	Phe	Ala
			340					345					350		
Ile	Pro	Ser	Asp	Arg	Val	Arg	Gln	Phe	Leu	Ala	Glu	Tyr	His	Glu	His
	355						360					365			
Gln	Met	Lys	Gly	Lys	Ala	Phe	Ser	Asn	Lys	Lys	Tyr	Leu	Gly	Leu	Gln
	370					375					380				
Met	Leu	Ser	Leu	Thr	Val	Pro	Leu	Ser	Glu	Glu	Leu	Lys	Met	His	Tyr
	385				390					395					400
Pro	Asp	Phe	Pro	Asp	Val	Ser	Ser	Gly	Val	Tyr	Val	Cys	Lys	Val	Val
				405					410					415	
Glu	Gly	Thr	Ala	Ala	Gln	Ser	Ser	Gly	Leu	Arg	Asp	His	Asp	Val	Ile
			420					425					430		
Val	Asn	Ile	Asn	Gly	Lys	Pro	Ile	Thr	Thr	Thr	Thr	Asp	Val	Val	Lys
	435						440					445			
Ala	Leu	Asp	Ser	Asp	Ser	Leu	Ser	Met	Ala	Val	Leu	Arg	Gly	Lys	Asp
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Asn	Leu	Leu	Leu	Thr	Val	Ile	Pro	Glu	Thr	Ile	Asn				
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<211> 2187

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (61)...(1473)

<400> 51

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Met Leu Arg Gly Ile Ser Gln Leu Pro Ala Val Ala Thr Met Ser Trp						
1 5 10 15						
gtc ctg ctg cct gta ctt tgg ctc att gtt caa act caa gca ata gcc	156					
Val Leu Leu Pro Val Leu Trp Leu Ile Val Gln Thr Gln Ala Ile Ala						
20 25 30						
ata aag caa aca cct gaa tta acg ctc cat gaa ata gtt tgt cct aaa	204					
Ile Lys Gln Thr Pro Glu Leu Thr Leu His Glu Ile Val Cys Pro Lys						
35 40 45						

aaa ctt cac att tta cac aaa aga gag atc aag aac aac cag aca gaa	252
Lys Leu His Ile Leu His Lys Arg Glu Ile Lys Asn Asn Gln Thr Glu	
50 55 60	
aag cat ggc aaa gag gaa agg tat gaa cct gaa gtt caa tat cag atg	300
Lys His Gly Lys Glu Glu Arg Tyr Glu Pro Glu Val Gln Tyr Gln Met	
65 70 75 80	
atc tta aat gga gaa gaa atc att ctc tcc cta caa aaa acc aag cac	348
Ile Leu Asn Gly Glu Glu Ile Ile Leu Ser Leu Gln Lys Thr Lys His	
85 90 95	
ctc ctg ggg cca gac tac act gaa aca ttg tac tca ccc aga gga gag	396
Leu Leu Gly Pro Asp Tyr Thr Glu Thr Leu Tyr Ser Pro Arg Gly Glu	
100 105 110	
gaa att acc acg aaa cct gag aac atg gaa cac tgt tac tat aaa gga	444
Glu Ile Thr Thr Lys Pro Glu Asn Met Glu His Cys Tyr Tyr Lys Gly	
115 120 125	
aac atc cta aat gaa aag aat tct gtt gcc agc atc agt act tgt gac	492
Asn Ile Leu Asn Glu Lys Asn Ser Val Ala Ser Ile Ser Thr Cys Asp	
130 135 140	
ggg ttg aga gga tac ttc aca cat cat cac caa aga tac cag ata aaa	540
Gly Leu Arg Gly Tyr Phe Thr His His His Gln Arg Tyr Gln Ile Lys	
145 150 155 160	
cct ctg aaa agc aca gac gag aaa gaa cat gcc gtc ttt aca tct aac	588
Pro Leu Lys Ser Thr Asp Glu Lys Glu His Ala Val Phe Thr Ser Asn	
165 170 175	
cag gag gaa caa gac cca gct aac cac aca tgt ggt gtg aag agc act	636
Gln Glu Glu Gln Asp Pro Ala Asn His Thr Cys Gly Val Lys Ser Thr	
180 185 190	
gac ggg aaa caa ggc cca att cga atc tct aga tca ctc aaa agc cca	684
Asp Gly Lys Gln Gly Pro Ile Arg Ile Ser Arg Ser Leu Lys Ser Pro	
195 200 205	
gag aaa gaa gac ttt ctt cgg gca cag aaa tac att gat ctc tat ttg	732
Glu Lys Glu Asp Phe Leu Arg Ala Gln Lys Tyr Ile Asp Leu Tyr Leu	
210 215 220	
gtg ctg gat aat gcc ttt tat aag aac tat aat gag aat cta act ctg	780
Val Leu Asp Asn Ala Phe Tyr Lys Asn Tyr Asn Glu Asn Leu Thr Leu	
225 230 235 240	
ata aga agc ttt gtg ttt gat gtg atg aac cta ctc aat gtg ata tat	828
Ile Arg Ser Phe Val Phe Asp Val Met Asn Leu Leu Asn Val Ile Tyr	
245 250 255	
aac acc ata gat gtt caa gtg gcc ttg gta ggt atg gaa atc tgg tct	876
Asn Thr Ile Asp Val Gln Val Ala Leu Val Gly Met Glu Ile Trp Ser	
260 265 270	
gat ggg gat aag ata aag gtg gtg ccc agc gca agc acc acg ttt gac	924
Asp Gly Asp Lys Ile Lys Val Pro Ser Ala Ser Thr Thr Phe Asp	
275 280 285	
aac ttc ctg aga tgg cac agt tct aac ctg ggg aaa aag atc cac gac	972

Asn	Phe	Leu	Arg	Trp	His	Ser	Ser	Asn	Leu	Gly	Lys	Lys	Ile	His	Asp	
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cat	gct	cag	ctt	ctc	agc	ggg	att	agc	ttc	aac	aat	cga	cgt	gtg	gga	1020
His	Ala	Gln	Leu	Leu	Ser	Gly	Ile	Ser	Phe	Asn	Asn	Arg	Arg	Val	Gly	
305					310					315					320	
ctg	gca	gct	tca	aat	tcc	ttg	tgt	tcc	cca	tct	tcg	gtt	gct	gtt	att	1068
Leu	Ala	Ala	Ser	Asn	Ser	Leu	Cys	Ser	Pro	Ser	Ser	Val	Ala	Val	Ile	
				325					330					335		
gag	gct	aaa	aaa	aag	aat	aat	gtg	gct	ctt	gta	gga	gtg	atg	tca	cat	1116
Glu	Ala	Lys	Lys	Lys	Asn	Asn	Val	Ala	Leu	Val	Gly	Val	Met	Ser	His	
			340					345					350			
gag	ctg	ggc	cat	gtc	ctt	ggg	atg	cct	gat	gtt	cca	ttc	aac	acc	aag	1164
Glu	Leu	Gly	His	Val	Leu	Gly	Met	Pro	Asp	Val	Pro	Phe	Asn	Thr	Lys	
		355					360					365				
tgt	ccc	tct	ggc	agt	tgt	gtg	atg	aat	cag	tat	ctg	agt	tca	aaa	ttc	1212
Cys	Pro	Ser	Gly	Ser	Cys	Val	Met	Asn	Gln	Tyr	Leu	Ser	Ser	Lys	Phe	
	370					375					380					
cca	aag	gat	ttc	agt	aca	tct	tgc	cgt	gca	cat	ttt	gaa	aga	tac	ctt	1260
Pro	Lys	Asp	Phe	Ser	Thr	Ser	Cys	Arg	Ala	His	Phe	Glu	Arg	Tyr	Leu	
					390					395					400	
tta	tct	cag	aaa	cca	aag	tgc	ctg	ctg	caa	gca	cct	att	cct	aca	aat	1308
Leu	Ser	Gln	Lys	Pro	Lys	Cys	Leu	Leu	Gln	Ala	Pro	Ile	Pro	Thr	Asn	
				405					410					415		
ata	atg	aca	aca	cca	gtg	tgt	ggg	aac	cac	ctt	cta	gaa	gtg	gga	gaa	1356
Ile	Met	Thr	Thr	Pro	Val	Cys	Gly	Asn	His	Leu	Leu	Glu	Val	Gly	Glu	
				420				425					430			
gac	tgt	gat	tgt	ggc	tct	cct	aag	gag	tgt	acc	aat	ctc	tgc	tgt	gaa	1404
Asp	Cys	Asp	Cys	Gly	Ser	Pro	Lys	Glu	Cys	Thr	Asn	Leu	Cys	Cys	Glu	
		435					440				445					
gcc	cta	acg	tgt	aaa	ctg	aag	cct	gga	act	gat	tgc	gga	gga	gat	gct	1452
Ala	Leu	Thr	Cys	Lys	Leu	Lys	Pro	Gly	Thr	Asp	Cys	Gly	Gly	Asp	Ala	
	450					455					460					
cca	aac	cat	acc	aca	gag	tga	atccaaagtc	tgcttcactg	agatgctacc							1503
Pro	Asn	His	Thr	Thr	Glu	*										
465					470											
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taacactcca	gaattgttaa	attacaagta	ctatgcttta	atgcttcttt	catcttacta											1863
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gaatagaatt	cagggttttat	gttattcctc	tgtgttctact	tcgccttgct	cttgaaagtg											1983
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<210> 52

<211> 470  
 <212> PRT  
 <213> Homo sapiens

<400> 52

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Val	Leu	Leu	Pro	Val	Leu	Trp	Leu	Ile	Val	Gln	Thr	Gln	Ala	Ile	Ala
			20					25					30		
Ile	Lys	Gln	Thr	Pro	Glu	Leu	Thr	Leu	His	Glu	Ile	Val	Cys	Pro	Lys
		35					40					45			
Lys	Leu	His	Ile	Leu	His	Lys	Arg	Glu	Ile	Lys	Asn	Asn	Gln	Thr	Glu
		50				55					60				
Lys	His	Gly	Lys	Glu	Glu	Arg	Tyr	Glu	Pro	Glu	Val	Gln	Tyr	Gln	Met
65					70					75					80
Ile	Leu	Asn	Gly	Glu	Glu	Ile	Ile	Leu	Ser	Leu	Gln	Lys	Thr	Lys	His
				85					90					95	
Leu	Leu	Gly	Pro	Asp	Tyr	Thr	Glu	Thr	Leu	Tyr	Ser	Pro	Arg	Gly	Glu
			100					105					110		
Glu	Ile	Thr	Thr	Lys	Pro	Glu	Asn	Met	Glu	His	Cys	Tyr	Tyr	Lys	Gly
		115					120					125			
Asn	Ile	Leu	Asn	Glu	Lys	Asn	Ser	Val	Ala	Ser	Ile	Ser	Thr	Cys	Asp
		130				135					140				
Gly	Leu	Arg	Gly	Tyr	Phe	Thr	His	His	His	Gln	Arg	Tyr	Gln	Ile	Lys
145					150					155					160
Pro	Leu	Lys	Ser	Thr	Asp	Glu	Lys	Glu	His	Ala	Val	Phe	Thr	Ser	Asn
			165						170					175	
Gln	Glu	Glu	Gln	Asp	Pro	Ala	Asn	His	Thr	Cys	Gly	Val	Lys	Ser	Thr
			180					185					190		
Asp	Gly	Lys	Gln	Gly	Pro	Ile	Arg	Ile	Ser	Arg	Ser	Leu	Lys	Ser	Pro
		195				200						205			
Glu	Lys	Glu	Asp	Phe	Leu	Arg	Ala	Gln	Lys	Tyr	Ile	Asp	Leu	Tyr	Leu
		210				215					220				
Val	Leu	Asp	Asn	Ala	Phe	Tyr	Lys	Asn	Tyr	Asn	Glu	Asn	Leu	Thr	Leu
225					230					235					240
Ile	Arg	Ser	Phe	Val	Phe	Asp	Val	Met	Asn	Leu	Leu	Asn	Val	Ile	Tyr
			245						250					255	
Asn	Thr	Ile	Asp	Val	Gln	Val	Ala	Leu	Val	Gly	Met	Glu	Ile	Trp	Ser
			260					265					270		
Asp	Gly	Asp	Lys	Ile	Lys	Val	Val	Pro	Ser	Ala	Ser	Thr	Thr	Phe	Asp
		275					280					285			
Asn	Phe	Leu	Arg	Trp	His	Ser	Ser	Asn	Leu	Gly	Lys	Lys	Ile	His	Asp
		290				295					300				
His	Ala	Gln	Leu	Leu	Ser	Gly	Ile	Ser	Phe	Asn	Asn	Arg	Arg	Val	Gly
305					310					315					320
Leu	Ala	Ala	Ser	Asn	Ser	Leu	Cys	Ser	Pro	Ser	Ser	Val	Ala	Val	Ile
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Glu	Ala	Lys	Lys	Lys	Asn	Asn	Val	Ala	Leu	Val	Gly	Val	Met	Ser	His
			340					345					350		
Glu	Leu	Gly	His	Val	Leu	Gly	Met	Pro	Asp	Val	Pro	Phe	Asn	Thr	Lys
		355					360					365			
Cys	Pro	Ser	Gly	Ser	Cys	Val	Met	Asn	Gln	Tyr	Leu	Ser	Ser	Lys	Phe
		370				375					380				
Pro	Lys	Asp	Phe	Ser	Thr	Ser	Cys	Arg	Ala	His	Phe	Glu	Arg	Tyr	Leu
385					390					395					400
Leu	Ser	Gln	Lys	Pro	Lys	Cys	Leu	Leu	Gln	Ala	Pro	Ile	Pro	Thr	Asn
				405					410					415	
Ile	Met	Thr	Thr	Pro	Val	Cys	Gly	Asn	His	Leu	Leu	Glu	Val	Gly	Glu
			420					425					430		
Asp	Cys	Asp	Cys	Gly	Ser	Pro	Lys	Glu	Cys	Thr	Asn	Leu	Cys	Cys	Glu
		435					440					445			

Ala	Leu	Thr	Cys	Lys	Leu	Lys	Pro	Gly	Thr	Asp	Cys	Gly	Gly	Asp	Ala
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Pro	Asn	His	Thr	Thr	Glu										
465					470										

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<220>  
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